

Conchal Defect Correction by Hinge Flap and Transposition Flap

Reconstruction of old full-thickness conchal defects is rarely described in the literature. This article describes a simple technique for reconstruction of old through-and-through small defects of the concha. The anterior part of the defect is covered with hinge flap taken from the posterior surface of the ear. The resultant final posterior defect is covered with local transposition flap from the adjacent skin.

KEYWORDS: Conchal defect, ear boring, ear reconstruction, hinge flap, transposition flap

INTRODUCTION

The conchal defect correction described in the literature is due to trauma or neoplasm. Reconstruction of old through-and-through defects of concha, like the case described here, is rarely reported in the literature. It is difficult to close a full-thickness conchal defect by primary suturing because of the underlying unyielding cartilage. Partial cartilage sacrifice can facilitate closure of the conchal defect but may reduce the size of the ear. Ear defect correction with various local skin flaps with or without cartilage support is described in the literature.^[1] In most cases, postauricular skin is used for anterior conchal skin reconstruction.

CASE REPORT

A 25-year-old male presented with a history of boring done in concha of the left ear about 20 years back as religious practice in his village. On examination, there was an elliptical full-thickness defect in the concha measuring 9 mm × 6 mm. There was a 0.5 mm scar around the margin of the defect. The scar was thin, flat, soft, supple and nonadherent. The skin surrounding the defect, on both sides of the ear, was normal and unscarred [Figures 1 and 2]. The patient, now employed, wanted the defect to be corrected.

OBJECTIVE

The left ear full-thickness conchal defect was planned for surgical correction. The problem was absence of skin on both the anterior and posterior conchal surfaces of the ear, with absence of underlying cartilage. The patient was planned for skin-only reconstruction on both sides of the ear.

OPERATIVE TECHNIQUE

The patient was operated under local anaesthesia with a 4x loupe magnification. Two dot markings were placed horizontally on the posterior surface of ear, 3 mm from the posterior margin defect. Two more dot markings were placed on the superior and inferior surface of the defect, just at the margin. All four dots were connected by a curved line forming an ellipse [Figure 3a]. An incision was made on the posterior conchal skin around the marked ellipse. Structures that were incised include skin, subdermis and perichondrium. The flap elevated with margin of defect as hinge. The hinge flap was turned 180 degrees and brought anteriorly through the defect to cover the anterior surface skin defect [Figure 4]. The resulting raw area on the posterior conchal skin, along with the original defect, measured 15 mm × 11 mm. The posterior conchal surface was covered with transposition skin flap mobilized from the adjacent postauricular area [Figure 3b]. The post auricular groove on the left ear was recreated by placing two anchoring sutures with 5-0 vicryl, bites taken from undersurface of the transposition flap to the post auricular sulcus. Skin closure was performed with 5-0 prolene interrupted sutures [Figure 5].

Access this article online	
Quick Response Code: 	Website: www.jcasonline.com
	DOI: 10.4103/0974-2077.85042

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Figure 1: Preoperative anterior left ear



Figure 2: Preoperative posterior left ear



Figure 3: (a) Incision marking - hinge flap (b) Incision marking - transposition flap



Figure 4: Immediate postoperative anterior left ear



Figure 5: Immediate postoperative posterior left ear

Skin sutures were removed on the 10th postoperative day. The anterior hinge flap and posterior transposition flap survived completely. The conchal defect was covered with skin of good colour match [Figures 6 and 7].



Figure 6: Postoperative 7th month - anterior left ear



Figure 7: Postoperative 7th month – posterior left ear

DISCUSSION

Surgical closure of any conchal defect needs tension-free repair and preservation of the postauricular sulcus. A full-thickness conchal defect is corrected by local flaps.^[1] The ideal choice for covering the anterior concha is skin from the postauricular area or from the posterior surface of the ear.^[2,3] The other option available for reconstruction of conchal defect is full thickness graft. Full-thickness skin graft can undergo centripetal contraction with poor aesthetic result.^[4] Postauricular flap based on dermal pedicle can be tunneled via conchal cartilage for conchal reconstruction.^[5] Other procedures described for conchal reconstruction are pull-through transpositional flap,^[6] turn over flap^[7] and trap door flap.^[8]

The hinge flap technique described here is a simple and easy procedure. Hinge flap is the flap taken from the margin of the defect. The margin acts as a hinge and the posterior ear skin is turned anteriorly through the defect without de-epithelization. The indication is old full-thickness small conchal defect with well-matured thin scar. Small flaps with perichondrium can be taken if the scar is thin and mature because of cross-communication of blood vessels in the concha. The external ear has two arterial networks, one in the network of the triangular fossa-scapha and other in the network of the concha.

Both networks communicate on the antihelix.^[9] The conchal network is provided by two to four perforators that come from the posterior auricular artery, piercing the conchal floor and communicating with the auricular branch of the superficial temporal artery. Elevation of the hinge flap with the perichondrium preserves blood supply by conchal network communications. The local transposition flap taken from the postauricular area to cover the posterior ear defect retains the depth of the posterior auricular sulcus.^[10]

SUMMARY

The conchal defect can be corrected by various methods depending on its size and location. This article describes a simple technique for covering small old through-and-through full-thickness conchal defect.

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How to cite this article: Alagirisamy RB. Conchal defect correction by hinge flap and transposition flap. *J Cutan Aesthet Surg* 2011;4:138-40.

Source of Support: Nil. **Conflict of Interest:** None declared.