

Restoring Auricular Integrity: A Case Report on Traumatic Right Auricular Reconstruction using Post-auricular Tubed Flap

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Abstract

Reconstruction of the auricular defects is challenging due to the ear's intricate architecture. Trauma and violence play a key role in acquiring the Auricular defect. Tubed flap raised from the post-auricular area is a simple and reliable option for reconstructing acquired Auricular defect. Here, we present the case of 35-year-old female patient came to the department with the complaint of pain over her right ear. Right auricular defects were reconstructed using a post-auricular tubed flap. Parameters such as flap survival, reliability, complications were assessed. The flap settled well with a good esthetic outcome. In traumatized ear defect, reconstruction using a post-auricular flap is very reliable and efficient method to restore the normal architecture of ear.

Keywords: Post-auricular flap, Traumatized auricular defect, Tubed flap.

INTRODUCTION

The ear is made up of cutaneous tissue that surrounds a thin, flexible, and elastic cartilage. There is no subcutaneous adipose tissue in the upper two-thirds, and the skin envelope is securely adhered to the underlying perichondrium in the anterior or lateral directions. Conversely, on the posterior or medial aspect of the auricle, there is a layer of adipose tissue between the skin and the perichondrium. The lobule in the lower third is made up of skin and fibro-fatty tissue without any cartilage.^[1] Auricular margin loss can result from a number of etiologies, including burns, trauma, animal bites, and human bites.

Due to the ear lobule's and helix's esthetic significance, partial loss of these structures results in malformation that is readily apparent. To restore the normal appearance and symmetry, the faults must be rebuilt, which calls for careful planning and execution to produce the best results.^[2] Plastic surgery presents unique challenges in the reconstruction of partial ear abnormalities because of the intricate three-dimensional anatomy of the ear and the high standards of expectations held by patients. According to our observations, individuals with ear deformities manage their situation more effectively than those with acquired congenital ear impairments, who have years of normal hearing. Because of their prominent position, flaws and injuries are visible from a distance.^[3] The way that emergency management is handled will affect later reconstructive surgeries. Patients who have had a portion of

their ear removed typically bring the severed tissue with them to emergency rooms in the hopes that it will heal. Sadly, this is rare as the wounds are frequently very polluted. In addition, the acute crushing of the severed tissue may hinder reattachment rather, for primary skin closure, the incision is cleaned, exposed cartilage is cut, and the skin is sutured.^[4] The most popular classification for traumatic ear defects is anatomical: upper one-third, middle one-third, and lower one-third.^[5] Auricular margin defects can be rebuilt using a variety of methods, from one-step to multi-step operations. The tubed flap is among the easiest and most dependable of these techniques, 1917 Saw Gilles' introduction of it. The post-auricular tubed flap is a widely utilized method that dates back to a time before the development of more recent flaps. It has been applied previously and is thoroughly explained in textbooks.^[2]

Our study presents the effectiveness of post-auricular tubed flap in terms of reliability and esthetic outcome in reconstructing traumatic auricular defect.

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CASE REPORT

A patient name Sangeeta age 35-year-old female came to the outpatient department in the Department of Oral and Maxillofacial Surgery in Index Institute of Dental Sciences, Indore, having complaints of pain over right ear for 1 month. Patient was apparently alright 1 month back then she starts experiencing pain over right ear due to cutting of her right ear in domestic violence for which she consulted nearby hospital. Pain was continuous and dull in nature. Patient was with no history of systemic condition. On examination, lacerated wound of right ear is approx. 3×3 cm. The defect does not involve antihelix or superior crus and involves less than half of ear lobe. The neighboring post-auricular skin is of good quality. Bilateral occlusion is stable and have adequate mouth opening.

Surgical procedure

Patient was taken for the surgery, (depict in Figure 1) where general anesthesia was administered along with endotracheal intubation. The cartilage is harvested from the conchal bowl of left ear followed by closure in layer with absorbable monofilament sutures. Before harvesting right post-auricular

flap debridement done and V-Y Plasty (depict in Figure 2) performed for superior helix of right ear by cartilage graft attached to remaining healthy cartilage margin from upper ear. Flap unsetting done for right post-auricular tube flap for reconstructing right lower ear by middle ear. Closure done with vicryl and nylon sutures (depict in Figure 3). Antibiotics and analgesics were given in the post-operative period and continued until postoperative day 5. Follow-up done for the 4 months [depict in Figure 4].

DISCUSSION

There are two primary groups for auricular margin defect reconstruction. One involves shifting the local tissue, which compromises the ear's size, while the other one is keeping the usual size of the flaps by utilizing the local tissue.^[6] Defects <1.5 cm can be repaired using wedge excision and closure.^[1,7] The primary drawback is that it can only address flaws that account for $<15\%$ of the total height, which lowers the ear's vertical height. Antia Buch helical advancement is one type of single-stage local flap that is frequently employed.^[8] It is best applied to superior and middle helix defects that are less than



Figure 1: Clinical photograph of defect



Figure 3: Flap placement and suturing

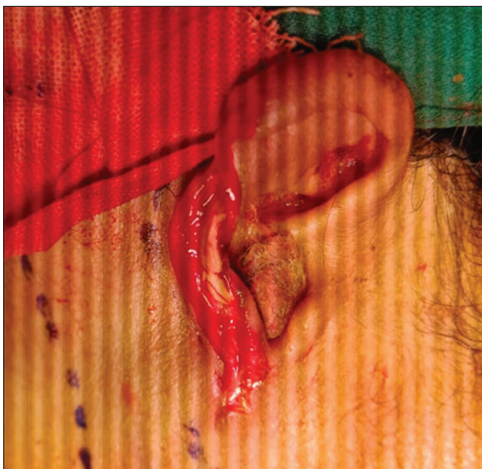


Figure 2: Flap marking, scab removal and fresh bleeding



Figure 4: Postoperative 4th month

3 cm in length. This technique's advantages are good cosmesis, preserved anatomical landmarks of the ear, and reliability of the flap. Although there are more advanced techniques available under the guise of single-stage reconstruction, the tubed flap remains relevant in basic settings due to its consistency, good outcomes, and low morbidity.^[9] The post-auricular tubed flap has shown to be a highly effective option for auricular margin reconstruction due to its close proximity to the defect, rich blood supply, color, and tissue match.^[10-12] Ellabban *at al.*^[13] described the post-auricular flap in cases of lobule and helix-related partial ear abnormalities. They suggested a two-stage ear reconstruction process, the first of which would include immediate rebuilding using a bipedicle flap and the second of which would involve the full division of the flap. They proposed that, as it minimizes the likelihood of flap shrinking and the number of reconstruction stages, an instantaneous transfer was preferable to tubing the flap. Longer defects cannot be resurfaced immediately is the main disadvantage with their method, as the longer flap requires a delay procedure.

In our case, we used the post-auricular-tubed flap involving lobule and helix followed by V-Y plasty.

CONCLUSION

This case depicts the esthetic as well as clinical manifestations of auricular defects and the challenges exhibit to restore the ear due to its intricate structure. With the least amount of donor site morbidity, post-auricular tubed flap through single stage is a safe and effective flap for rebuilding middle and

lower third auricular margin deformities including helix and lobule.

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