

Microtia Correction: Thou Shall Not Throw Living Tissue

Avinash Agarwal, Manik Sharma and Vipul Nanda*

Cosmetic and Plastic Surgery Department, Artemis Health Institute, India

***Corresponding Author:** Vipul Nanda, Cosmetic and Plastic Surgery Department, Artemis Health Institute, India.

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Abstract

Microtia is a congenital deformity of the external ear having an incidence of one in 7000 to 8000 live birth [1]. The classical technique for treatment involves reconstruction of the ear framework with autologous costal cartilage. The use of synthetic materials to create a framework is increasing. Such materials are a suitable option in older individuals where the costal cartilages have already ossified and hence are unavailable for carving. Research continues to improve the quality of alloplastic materials and the surgical techniques are getting refined. However, despite all the improvements in the materials and the refinements, complications like infection, wound healing issues, exposure of the implant and fracture of the framework are known. Exposure of the implant often requires explantation resulting in failure of the entire surgical exercise. Implant exposure therefore is a challenging complication that requires urgent attention. The availability of local native tissue and the surgeon's ability to utilise it as a cover may turn out to be a lifeboat in this situation. We present a case of an exposed alloplastic ear implant (Medpor) which was salvaged successfully using the redundant native skin from the original deformed ear.

Keywords: *Microtia; Exposed Implant; Ear Reconstruction*

Introduction

Defects of the external ear are one of the most noticeable disfigurements of the face. It may be associated with a functional deficit apart from its cosmetic problem. Congenital auricular defects result from abnormal embryological development of the first and second branchial arches during the first trimester. It includes a spectrum of deformities such as anotia, microtia, constricted ear or prominent ear.

Correction of the deformity aims at achieving normal contour of the external ear as well as restoration of function whenever possible. There are several well established methods depending on the age at presentation, condition of the surrounding tissues and the expectation of the patient. Autologous reconstruction using

costal cartilage is the classical method to reconstruct the defect. It requires multiple stages, has a risk of donor site complications and scarring and the possibility of resorption of the cartilage. There may be situations where a framework made of synthetic material may be preferred. This has led to the development of alloplastic ear framework enabling reconstruction without relying on the patient's cartilage stock. Initially, Cronin proposed the use of silastic ear implants but these were associated with poor vascular bed and capsule formation. It has gradually shifted to porous polypropylene (Medpor). It is a thermoplastic sheet with micropores ranging from 40-300 microns which allow vascular ingrowth and thereby reduces the chances of extrusion [2].

Despite all the refinements, alloplastic implants are associated with complications such as infection, fracture of the implant and

implant exposure and extrusion. Management of these complications is a difficult clinical problem and may end in the removal of the implant.

We present a case of implant exposure and its successful management with redundant native tissue.

Case Report

A 22 year female patient presented with grade II microtia (Weerda classification) of the left ear (Figure 1). Keeping in view of her age and her wishes, a decision was taken to opt for an alloplastic (Medpor) implant for reconstruction. A subcutaneous pocket was created at the proposed location of external ear and the deformed native cartilage was dissected out and discarded carefully preserving the overlying skin and the preauricular tag. The framework was assembled and placed in the appropriate orientation and the incision was closed in layers over a suction drain. The temporoparietal fascia flap was reserved for second stage to cover the posterior aspect of implant and create a durable post-auricular sulcus. The first post-operative dressing done at postop day 3 and exposure of around 1 cm of the implant was noted at the antihelix (Figure 2). The next day a debridement of the biofilm and necrosed tissues was done and the implant was covered by a skin flap designed from the native tissues (Figure 3). Broad spectrum antibiotics were continued for a total of two weeks and the patient was kept under close observation for a month.

Figure 1: Microtia left side.

Figure 2: Exposed implant.

Figure 3: Salvage by remnant lobule.

In the second stage, elevation of the framework was done and the sulcus was lined with the temporoparietal fascia and skin graft. After another four months, the third stage was planned in which the pre auricular skin tag was removed and used as a skin graft to mimic the external auditory canal by creating a tragal shadow (Figure 4).

Discussion

Management of an exposed implant is a challenge for the surgeon and the patient alike. The recommendations to prevent this

Figure 4: Two year post op period.

complication include gentle tissue handling and careful dissection to avoid injury to the subdermal vascular plexus, covering the implant with a vascularised fascial flap and application of a snug dressing without undue pressure. The temporoparietal fascia under the skin adds thickness and may hide the contours of the implant. Utilising a skin graft over the fascia has the benefit of a thin and stable cover but suffers from hyperpigmentation of the skin graft. This hyperpigmentation is a cause of dissatisfaction in patients with Fitzpatrick skin type 3, 4 and 5 [3].

In spite of all the precautions, we may face exposure of implant in post-operative period and there are no standard guidelines when actually faced with such a problem. Treatment of exposure will depend upon when the exposure happens after the operation and also on the extent of exposure.

In the immediate postoperative period, impending skin necrosis or actual implant exposure occurring before obvious infection has set in requires urgent intervention. Coverage of the implant is of paramount importance and can successfully salvage the situation as in our case.

Implant exposure occurring in the early postoperative period and with obvious signs of purulence merits removal of the implant. A new implant may be inserted after a few months when the skin has become supple again.

After a few months the implant develops good vascular ingrowth and minimal exposure happening later can be managed with debridement and secondary healing or local skin adjustment.

However, if the exposure is large and there is no adequate cover available, the deep temporal fascia flap or free TPF flap may be required.

This case highlights that we should not be quick in discarding native redundant tissue as far as possible during the index surgery. This tissue can be a lifeboat and put to good use in certain situations. Once reconstruction is satisfactory and appears stable one can easily excise this under local anaesthesia.

Conclusion

Plastic surgeons all over the world have found guidance from the principles enumerated by Sir Harold Gillies, who is referred to as the father of Plastic Surgery [4]. The difficult clinical problem of implant exposure in a case of microtia and its successful management reinforces his fourth principle "Thou shalt not throw living thing [5].

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