MANAGEMENT OF PARTIAL POST TRAUMATIC AURICULAR DEFECTS

Thesis

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By

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Abstract

Auricular reconstruction is one of the most difficult challenge of the plastic surgery because the nature of its structure and the complexity of its form.

In this study the majority of cases were partial ear defects they represented 85% of the cases .There were male predommince than the females which may be due to the exposure of male to violence more than females.

Acquired partial ear defects may be as upper, middle or lower third defects .In this study they were 17 cases and all were repaired by post auricular flap.

The flap used was raised as axial flap (containing the posterior auricular artery) this made it could be raised as superiorly or inferiorly based flap to cover different sites and size of ear defects.

This flap made the reconstructive procedure simpler and of shorter duration being only as one stage repair. It did not show any flap necrosis or sloughing and also with no donor site morbidities.

The cases of totally amputated ear in this study were two cases and they were presented without the amputated part therefore no attempts of ear reimplantation was tried .These cases were repaired in two stages .First stage was to insert the carved cartilage in the formed pocket in the post auricular region and the second stage was done after three weeks to separate the cartilage from its bed and the raw area was covered by full thickness graft from the contralateral post auricular region. This type of repair was done in few cases and so we need further work to asses this type of repair.

Keywords:

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INTRODUCTION

Auricular reconstruction for traumatic deformities remains one of the greatest challenges to the reconstructive surgeon. Up till now no perfect material has been found to substitute the shapely elastic cartilage normally present in the ear. Adaptation of soft tissue to cover the chosen substitute ear skeleton also poses a significant challenge as concerns for tissue viability and the effects of contracting scar tissue on the repair which was already done.

Auricular reconstruction of the acquired deformity differs from congenital microtia. There is always less skin available. In microtia, removal of the cartilaginous remnant provides supple unscarred skin to supplement the retro-auricular skin. In the acquired situation, there may be no residual ear skin and the presence of scarring from the traumatic or surgically removed ear restricts the skin pocket. In many cases, a temporoparietal flap with skin graft is required in addition to the native skin. The flap provides an unlimited amount of vascularised tissue, but the combination of the flap and the skin graft never have the nature or color match of the native skin. In addition, the presence of an external auditory meatus limits the access incisions, the extent of the skin pocket and the risk of infection. The canal is colonized with bacteria, frequently Pseudomonas species, which adds additional problems not encountered in microtia cases.

Most auricular deformities are acquired partial defects for which there is a good solution for their reconstruction. The more superior on the ear the defect is located, the more choices are there

for reconstruction. Reconstruction of the lobule is the most difficult and is aesthetically the most important. (**Charles H. Thorne, MD** 2007)

Although some defects can be closed by soft tissue alone, cartilage is frequently needed for support. For smaller defects, a conchal cartilage graft may be sufficient. However, for larger defects the rules of Firmin are extremely helpful: "Defects that consist of 25% or more of the helical rim or involve more than two planes (i.e., involve antihelix as well as helix and scapha) will require rib cartilage for support, conchal cartilage will not provide sufficient support in these cases." (**Charles H. Thorne, MD** 2007)

The risk of complications of auricular correction is underestimated. There is about 5% risk of early complications (hematoma, infection, fistulae caused by stitches and granuloma, allergic reactions, pressure ulcers, feelings of pain and asymmetry in side comparison) and there are 20% risk of late complications (excessive edge formation, auricle fitting too closely, keloids and complete collapse of the ear, loss of the flap designed either total or partial loss). The causes of complications and deformities, in the vast majority of the cases, were due to incorrect diagnosis and wrong choice of operating procedure. The choice of operating procedure must be adapted to suit the individual ear morphology. Bandaging technique, inspections and, if necessary, early revision of the operation are of great importance for the occurrence and progress of early complications, in addition to the operation techniques. Large deformities can often be corrected only to a limited degree of

satisfaction. (Hoehn JG, Ashruf S. 2000;) *(*Adamson PA.1991 and Beck J.1923)

The recreation of the ear in order to appear normal and aesthetically acceptable to the patient is starting to be one of the most difficult and challenging of all reconstructive procedures, due to their anatomical complexity.

Ear reconstruction is a procedure to correct a malformation of the ear resulting from acquired condition. The operation may be a single procedure, or multistage with a range of approaches. In order to reconstruct a single or matching set of the ear, multiple procedures may be required using the patient's own tissues and/or adjuncts. (Beck J.1923).

Different modalities were used in traumatic ear reconstruction as split thickness graft, local advancement flap, tissue expansion, tubed pedicle flap and tissue engineering. In this study the results of post auricular flap which will be used to repair the cases of partial ear defects will be evaluated regarding advantages and disadvantages.

AIM OF THE WORK

To evaluate the results of the post auricular flap which will be used to repair cases of post traumatic partial ear defects. This flap will be used to cover defects in various site (upper, middle, lower third defects) and of different size.

ANATOMY

The external ear consists of an expanded portion named pinna or auricle and auditory canal or meatus. The former projects from the side of the head and serves to collect the air vibrations which constitute the sounds waves, while the meatus extends inwards from the bottom of the auricle conducting the vibrations which are transmitted to the tympanic membrane.(Gray et al.,1977)

The auricle

The auricle has a skeleton of resilient yellow cartilage which is thrown into folds giving the ear the characteristic shape. The cartilage is covered on both surfaces with adherent hairy skin, which doesn't extend into the lobule of the ear, but it is prolonged inwards in tubular fashion covering the cartilaginous part of the external acoustic meats. The cartilage is attached to bone stabilizing the auricle in place.

The lateral surface of the auricle is irregularly concave, looks slightly anterior and forms numerous eminences and depressions. The curved prominent rim of the auricle is called the helix, another curved prominence parallel and anterior to the posterior part of the helix called antihelix. The antihelix divides the auricle above into two crura between which is a depressed triangular fosse, the narrow depression between helix and antihelix is called the scaphoid fossa.

The antihelix partly encircles a deep capacious cavity called the concha of the auricle, which is incompletely divided into two