



EAR DEFORMITIES AND EXPERIENCES WITH EAR RECONSTRUCTION

Dr Nisha Kalra*

Associate Professor Head of Department of Plastic Surgery, New Civil Medical College & Hospital, Surat, Gujrat. *Corresponding Author

ABSTRACT

Objectives To study various causes of ear defects and to evaluate the management pattern for the various types of ear deformities. To assist in the treatment based classification of defects based on the extent of true tissue loss & degree of disfigurement

Methodology Study included 60 cases of varied etiology including trauma, post keloid excision, tumor, congenital deformity, post burn defects involving either whole or part of the auricle. All efforts were made to reconstruct ear to near normal

Results Maximum input was from posttraumatic etiology (36.66%) followed by congenital and post keloid excision defects (20% each). Out of 60 cases; left side (41.7%) was commonly involved. No specific cause was found for side predilection. Among acquired cases, middle 1/3 defects were most common and were mostly attributable to trauma and post keloid excision. We had an equal number of cases of total ear loss due to congenital and acquired causes accounting to 33.33% out of the total 6 cases. The choice of suitable method must be based on etiology, location and surrounding tissue available.

Conclusion. The ultimate goal is to attain consistent, satisfactory, and favorable result, the appearance of a normal ear. There is need for individualistic approach for the management of ear defects. Experience and knowledge of various methods are key to a successful outcome

KEYWORDS : Ear Reconstruction, Keloid, Defect

INTRODUCTION

The appearance and symmetry of the auricle is crucial for the maintenance of facial cosmetic harmony. The embryological development of the auricle is so complex that any mishap during and after its development gives rise to a broad spectrum of deformities.

Various auricular deformities may be a source of psychological distress in either sex and at any age. A truly gratifying response to a well performed otoplasty is the rule in prominent ears. One must consider not only the selection of the surgical method or technique but also the importance in planning the surgery to correct the defect and in the selection of the material required to correct the defect or to reconstruct the auricle.

Surgical construction of the auricle with autologous tissues is a unique marrying of science and art. The clinical art of ear reconstruction emulates the fine art of sculpture and is one of plastic surgeons true test of talent. Although the surgeon's facility with both sculpture and design is imperative, the surgical result is equally influenced by adherence to sound principles of plastic surgery and tissue transfer. The aim is to produce an ear that the surgeon can present without apology and that the patient can expose without embarrassment

METHODOLOGY

Our study included 60 cases of varied etiology including trauma, post keloid excision, tumor, congenital deformity, post burn defects involving either whole or part of the auricle. The present study of 60 cases of ear deformities were carried out in our plastic surgery department from 2003 to 2005, inclusive of retrospective and prospective study. All efforts were made to reconstruct ear to near normal. Many of them required multiple stages of operation. Patients included both outdoor & indoor patients & of all ages & sex distribution.

For this case study one needs a well planned programme. The present series of 60 cases of congenital ear deformity reconstructions were studied in the following manner.

PROFORMA OF CASE STUDY

Name :
Age/sex :
Religion :
Residence :
Occupation :

Reg no : PS no:
Date of admission : Date of discharge:

History etiology

Keloid with duration
Congenital
Trauma
Tumor
Burns

Type of deformity:

Maternal history

Age:
Drugs:
Alcohol:
Smoking:
Pregnancy:

Paternal history:

Age:
Drugs:
Alcohol:
Smoking:

FAMILY HISTORY (in congenital cases):

Local examination:

Size of normal ear

Length (superior helical rim to lobule)
Breadth (tragus to helical rim)
Contour

Size of defect:

Length
Breadth
Contour
Skin only
Skin + perichondrium + cartilage

Site of defect:

Trauma	Upper 1/3
	Middle 1/3
	Lower 1/3
	Whole
	Helical rim
	Total avulsion
Congenital	
Tanzer	Type 1
	Type 2A, B

Type 3
Type 4
Type 5

Side : Right/Left

CONDITION OF THE SURROUNDING SKIN:

Preauricular:
Post auricular:
Neck:
Supraclavicular:
Hair line:

OBSERVATION TABLES

Table 1: FREQUENCY ACCORDING TO ETIOLOGY

Etiology	No. of Cases	Incidence(%)
Traumatic	22	36.66
Congenital	12	20
Tumor	1	1.66
Burns	5	8.33
Keloid excision	12	20
Post human bite	6	10
Post infective	2	3.33

TABLE 2: RATION OF SIDE PREPONDERANCE OF DEFORMITY

Side affected	No. of cases	Incidence(%)
Right	22	36.66
Left	25	41.66
Bilateral	13	21.66

Table 3: SEX DISTRIBUTION AMONG ALL CASES

Sex	No. of cases	No of cases
	Acquired	congenital
Male	36	8
Female	24	4

RESULTS

In our study maximum input was from posttraumatic etiology(36.66%)followed by congenital and post keloid excision defects,20 % each .The average age at surgery is 13 years, ranging from 6-25 years. Male to female ratio is 2:1. The most common types of deformities operated are microtia and prominent ears, other included are anotia, upper third defects including cockle shell ear and cup ear, helical rim cleft, earlobe deformities, hemangioma and preauricular tags.

Out of 60cases; left side (41.7%) was commonly involved . Among acquired cases, middle 1/3 defects were most common and were mostly attributable to trauma and post keloid excision. Total ear avulsion treated by primary suturing after adequate debridement gave good results. The average follow up of the patients was ranging from 1 month to 2.5 years

The commonest complication faced was infection; one chest wound infection, and two infections at auricular site. Other minor complications included suture extrusion in one, skin graft contracture in one, and small skin graft loss in two cases.

DISCUSSION

The auricle constitutes only a small portion of total body surface area, but is probably one of the most sophisticated and complex morphological structures of body. Now it has become almost vestigial and serves more as a frame about the auditory canal and a platform upon which eyeglasses rest and the ear rings dangle.

The auricle is made up of a complexly convoluted frame of delicate elastic cartilage surrounded by a thin skin envelope. The external ear comprises the auricle, or pinna and the external acoustic meatus. The appearance and symmetry of the auricle is crucial for the maintenance of facial cosmetic harmony. The embryological

development of the auricle is so complex that any mishap during and after its development gives rise to a broad spectrum of deformities.

In our study maximum input was from posttraumatic etiology 36.66%) followed by congenital and post keloid excision defects,20 % each. The average age at surgery is 13 years, ranging from 6-25 years. Male to female ratio is 2:1. The most common types of deformities operated are microtia and prominent ears, other included are anotia, upper third defects including cockle shell ear and cup ear, helical rim cleft, earlobe deformities, hemangioma and preauricular tags.

Out of 60cases; left side (41.7%) was commonly involved . No specific cause was found for side predilection .Among acquired cases, middle 1/3 defects were most common and were mostly attributable to trauma and post keloid excision. we had an equal number of cases of total ear loss due to congenital and acquired causes accounting to 33.33% out of the total 6 cases. We had equal frequency of associated facial anomalies in congenital cases viz-facial nerve palsy, hemifacial microsomia which was comparable to the contemporary study. All Microtia/anotia cases are managed by staged total ear reconstruction using autologous costal cartilage graft. In two cases helical rim was augmented with cervical tube.

Duration of total ear reconstruction is on average 11 months for microtia/anotia. In case of total ear loss following trauma(2 cases) and burns(1 case), temporoparietal fascia had to be used to cover autogenous cartilage framework .Single case of prominent ear was treated by Converse methodThe helical defects were mostly managed by Mastoid flap in approx 62%cases of traumatic defects and 8.3% of post keloid excision defects. Antia & Buch helical advancement flap was used for small to moderate helical defects. Dieffenbach flap was used for 1 case of mid 1/3 post traumatic helical loss. 60 % of lobule defects in our study were treated by Converse method. Total ear avulsion treated by primary suturing after adequate debridement gave good results. The average follow up of the patients was ranging from 1 month to 2.5 years

The commonest complication faced was infection; one chest wound infection, and two infections at auricular site. Other minor complications included suture extrusion in one, skin graft contracture in one, and small skin graft loss in two cases. cartilage resorption and rotation of cartilage framework occurred in one patient each. No pleural tear was noted.

CONCLUSION:-

The auricular deformities may be a source of psychological distress in either sex and at any age. The appearance and symmetry of the auricle is crucial for the maintenance of facial cosmetic harmony.

The congenital deformities of the ear are more common in males compared to females; the commonest among them are microtia and prominent ears. The patients seeking reconstruction of auricle at around the marital age, and only for more severe forms like complete hypoplasia of the ear; that's why the age of presentation for surgery is comparatively rare and rate of reconstruction for anomalies other than microtia is very less in comparison to its actual incidence.

Although the surgeon's facility with both sculpture and design is imperative, the surgical result is equally influenced by adherence to sound principles of plastic surgery and tissue transfer. Ear reconstruction with autologous cartilage graft is well received by patients with microtia, and the success of outcome depends greatly on preoperative planning, placing the auricle in a symmetric position with respect to the facial landmarks and obtaining symmetric projection from the skull are of paramount importance for optimum outcome. The technique of carving an acceptable cartilage framework is of prime importance for pleasing outcome.

We had excellent results in cases of helical rim defects treated by

mastoid flap, only drawback is it being a staged procedure. Converse flap gives promising results provided it is planned 1/3 times more than the actual defect to compensate for the full thickness graft contraction. Cases of ear avulsion treated by primary suturing had minimum tissue loss as the final outcome thus stressing the need for immediate intervention in such cases.

The results of this study commend the various methods used for total auricular reconstruction as well for otoplasty for prominent ears and other reconstructive methods for various acquired ear deformities as a reliable means of reconstructing the auricle, provided one adheres strictly to the general principles of successful wound healing- with particular attention to the control of infection and Hematoma.

As no two defects are the same, the choice of suitable method must be based on etiology, location and surrounding tissue available. Thus stressing the need for individualistic approach for the management of ear defects. Experience and knowledge of various methods are key to a successful outcome.

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