AURICULAR PROSTHESIS - THE OVERLOOKED SKILL IN PROSTHODONTICS

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ABSTRACT
Management of patients with facial deformities requires multidisciplinary approach. Not all situations are amenable for surgical reconstruction, thereby necessitating rehabilitation with prosthesis. This article presents an outlined procedure in the basic fabrication of a prosthetic ear by 3-piece die technique. The object here is to clarify the sequence of a common fabrication technique. Quality of life can be severely affected by congenital absence or loss of external ear either post surgically or due to trauma. Prosthesis for missing ear greatly adds to the aesthetic and psychological well being of the patient.

Keywords: Auricular prosthesis, Facial rehabilitation

INTRODUCTION
The fabrication of an ear prosthesis is considered by many prosthodontists to be one of the more difficult replacements in maxillofacial reconstruction. The severe undercuts and pronounced convolutions of the ears surface presents a challenge in simulating a natural proportioned ear. Ear forms a major part of middle third of the face. Though vital organ to facilitate hearing by collecting and diverting sound waves, it also contribute to the aesthetic aspect of the face. Such patients are under great psychological and emotional stress, more from the cosmetic view point.

Though surgical reconstruction and implant supported prosthesis can provide solutions, they are not without drawbacks. In some instances, medical and financial constraints may hinder the patient from seeking the treatment. This article provides simple solution to attempt reconstruction and rehabilitation of patient with congenitally missing ear.

HISTORY- REVIEW OF LITERATURE
Pare (1517-1590) advocated the use of prosthesis to replace the ear and this extra oral prosthetic device was meant to be held in place by a metal band that went over head. In 1960 Cicero B.V. used acrylic resin with an intrinsic pigment for prosthesis. Retention was supplied by the temple pieces of glasses, a slight vertical support in the auditory canal and a sheet of elastic rubber behind the head.

In 1967 Arturo Santiago used a vinyl resin for preparation of prosthesis. It is held in place with double faced tape.

In 1969 Kenneth E. Brown prepared ear prosthesis with 3 piece -die technique with pure silicon 502 and retention is achieved by skin adhesive.

In 1980 Parel S.M. used medially tensioned eye glasses temple piece, engaging various convolution of remaining tissue, and external auditory canal for retention of prosthesis.

CASE REPORT
A 28 years old male patient was referred to Department of Prosthodontics Ahmedabad Dental College and Hospital, Ahmedabad, with chief complaint of congenitally missing right external ear. Small rudimentary ear was present in anti tragus region of the ear. Patients left ear was normal with normal hearing pattern. Hearing pattern is normal in right side external auditory canal. There were no associated features suggestive of microtia or any other syndrome.

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A prosthetic reconstruction was decided to satisfy patients desire of cosmetic correction and social rehabilitation due to financial constraints.

PROCEDURE
Impression was obtained with the patient lying on his side in a supine position. Condylar movements were closely examined because it may result in tissue bed mobility, which can affect margin placement, tissue coverage and retention of prosthesis.

Horizontal lines from corner of eye to superior border of ear attachment, and corner of mouth to lower lobe, and one vertical line adjacent to tragus is drawn on patients face on non defect side. Similar line was transferred on defect side. Fig-1(a, b)

These markings were transferred with the impression and showed on the working cast. These coordinates are of value in obtaining the proper orientation over the defect while making a new ear form.

The patients skin was boxed to the circumscribed outline with the collar of wax. Adjacent hair should be covered with petrolatum, cotton placed in the ear canal.

Irreversible hydrocolloid was used to make impression. The addition of 50% more water improved its flow properties and facilitated the impression procedure. A backing of quick setting plaster provided suitable support for the impression. Stone model was prepared from the impression. FIG-2(a, b)

SCULPTING
The prosthesis can either be sculpted from the beginning or the 'donor technique' may be used. For this patient sculpting was done from the beginning. It is done by dividing the cast of the normal ear into equal sections so that contours are more easily verified.

When the position and basic contours of the wax pattern are acceptable the surface details were applied. The surface texture of the restoration is important and was developed by use of pores which vary in number in geographic distribution and with age. Contours, grooves and wrinkles were reproduced. Where the margins of the prosthesis were difficult to conceal because of lack of anatomic resources (such as grooves), the margins of the stone cast are slightly scored, so that haloplasty will develop some pressure on the skin.

TEMPORARY AURICULAR PROSTHESIS
After sculpting try-in was done. FIG-3 Temporary auricular prosthesis made up of acrylic resin with intrinsic skin colors incorporated was given. Temporary prosthesis was attached to spectacles frame by clear acrylic resin and was given to the patient for period of one month. Fig-4, 5

Patients consent was taken for any changes in size, position, contour, color, surface texture of ear, and appropriate changes were made in silicone prosthesis.

SURFACE DIE FABRICATION (3-PIECE DIE)
The sculptured ear form, while seated on the working cast, is boxed in wax along the greatest dimension of the helix and lobe enclosing all of the posterior aspect of the form.

Notch the border of the posterior stone cast registration and lubricate the surface.
The complete posterior under surface of the sculptured ear is registered by pouring artificial stone into theboxed area.
The boxing wax is removed from the superior aspect of the completed posterior registration to facilitate flush registration of two parts.

Box the complete working cast with the sculptured form including the posterior stone cast registration.

Pour artificial stone into the boxed area completely covering the external surface of the wax form and the outer surface of the posterior stone cast registration.

Remove all artefacts and aberrations which might prevent the approximation of the die surfaces into a tightly fitting mold assembly.

PACKING OF MOLD OR SILICONE PAINTING
Poured on to a mixing slab a generous amount of a selected base color of silicone Dow corning, (U.S.A.) MDX4-4210(silastic) (RTV silicone) compounded by incorporation of various amounts of different resin pigments. Seat the patient near the dentist for convenient referral in evaluating the skin tones and color highlights.

When final matching blend of the base color has been established, catalyst was added. Generously coat all three surfaces with catalyst activated basic color silicone to ensure adequate coating of the entire mould surface. Using keyed margins, accurately assemble the dies to create complete mould form.
Allow for complete catalytic action to take place, disassemble the mould, and carefully retrieve the processed silicone form. (FIG-6.)

RETENTION AND CARE
Patient was instructed to keep the skin surface clean and free of oil secretions to insure proper adhesion of appliance.

Apply Medical adhesive B-402 in a thin film to the periphery of appliance. Remove old adhesive films from the skin and the appliance with each new placement. (Fig-7,8.)

SUMMARY
This article presents an outline of the fabrication procedure in constructing an ear prosthesis employing a three-piece stone mould for processing silicone.

The critical steps are emphasized in making the impression, sculpting and processing procedure to insure the quality of the prosthetic replacements.

**Figure 1(a):** vertical & horizontal lines were drawn on right side of face

**Figure 1(b):** vertical & horizontal lines were drawn on left side of face

**Figure 2(a):** extra oral irreversible hydrocolloid impression.

**Figure 2(b):** stone cast prepared.
REFERENCES