

Case Report on - Auricular Prosthesis

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Citation of this Article: Sruthi YSS, Rao BL , Parvathi PSHL, Chakradhar V, “Case Report on - Auricular Prosthesis”, IJDSIR- January - 2021, Vol. – 4, Issue - 1, P. No. 372 – 375.

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Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Prosthodontics is not just confined to replacement of missing teeth but beyond one’s scope. In rehabilitation of maxillofacial prosthesis, Prosthodontics is not just an application of science but mainly an art of recreating the lost structures. The fabrication of any extraoral maxillofacial prosthesis presents the prosthodontist with several phenomenal challenges. Replacement or reconstruction can be done by surgical or prosthetic approach. However, not all situations are favorable to surgical reconstruction. The goal of the Prosthodontic rehabilitation should strictly adhere to the MM De Vans dictum i.e., perpetual preservation of what remains is of utmost importance than the meticulous replacement of what is lost. This article emphasizes on the steps in fabrication of ear prosthesis for burn deformity.

Keywords: Facial defect, Auricular prosthesis, Silicone, Burn deformity, Prosthodontist, Adhesive, Retentive aids.

Introduction

The importance of face and beauty for a man was well depicted by the famous quote “Love for life comes next to love for face”. It’s the facial beauty that captures the attention of the people. Any facial defect or deformation can lead to loss of beauty and reduces the social well-being of the person. A series of problems pertaining to esthetics, psychology and function are posed by the maxillofacial defects, well coming to extraoral defects esthetics is of prime concern. The maxilla-facial defects are either congenital or acquired based on the reason by which they are caused. The dental specialty of Prosthodontics, has its broadened up its scope by spreading wings into maxillofacial rehabilitation because of reduced time period and non-surgical treatment, because prosthodontics “is the dental specialty pertaining to the diagnosis, treatment planning, rehabilitation, and maintenance of the oral function, comfort, appearance, and health of patients with clinical conditions associated with missing or deficient teeth and/or maxillofacial tissues

by using biocompatible substitutes; comp, fixed prosthodontics, implant prosthodontics, maxillofacial prosthetics, removable prosthodontics” as per GPT 9. Prosthetic replacement of the exterior part (Epithesis) is probably as old as civilization. References to it are available in Indian, Greek, Roman, Egyptian Civilizations. Through this article we would like to bring up a case report on prosthodontic rehabilitation of the missing ear.

Case Report

A 45-year-old female patient reported to the department of Prosthodontics, Lenora institute of dental sciences, Rajahmundry, India for prosthetic rehabilitation of maxillofacial defect involving the right ear. Patient revealed the history of injury as burns accident (patient had her first epileptic attack during cooking on a fire sticks and fell into the fire) 10years back. Hearing sensation on the defect side was not much compromised. The patient complains of difficulty in social being and awkward feeling when people questions her about the reason for deformity and treating her as challenged person. All the treatment options were explained and discussed keeping in the mind the complaints of the patient and economic constraints, silicone facial prosthesis was planned and entire treatment plan along with the limitations of the prosthesis was discussed with the patient and consent was taken from the patient.

Impression Phase

The surrounding facial skin and hair near the defect and contra-lateral ear was protected by applying petrolatum gel. The external auditory canal was blocked with gauze to prevent entry of impression material, and the defect was boxed with the wax sheets to confine and support the impression. Impressions of both defect side and contralateral ear were made using alginate (irreversible hydrocolloid), and with the gauge in between, and backing is done by quick-setting plaster to provide support for the

impression. The impression was poured with the dental stone to get the master cast of the defect site and with wax to get the model of the ear of the normal ear.

Sculpting

The prosthesis should have a lifelike appearance, so sculpting was done with utmost care to complement the aesthetics. The prosthesis can be sculpted from the beginning using the clay and using the contralateral ear as a guide. The clay model of the was duplicated with alginate and wax model was obtained. The wax pattern try-in done. During try-in the two lines were marked from the right side to left side of the face taking the superior, middle and inferior border of the natural ear on left side as reference. These lines were of value in assessing the proper orientation of the prosthesis. he wax prosthesis was tried on the patient and evaluated for the correct fit on the tissue, correct horizontal alignment with the contra lateral ear, projection of the ear in relation to the side of the head and integrity of the margins during simple jaw movements was checked.

Mould Space Preparation

After the wax pattern try-in was done, it was oriented on the master cast using the markings placed on the defect site and necessary modification was done to match the contralateral ear. The wax pattern was then sealed in position on the master cast and leading edges were thinned as much as possible so as to allow the silicone edges to feather into the natural skin and when used in conjunction with adhesive they disappear. A two piece mould was fabricated for easy placement of silicone in the mould. An adequate amount of silicone material was dispensed (RTV silicone) on the glass slab. Manipulation of the silicone material was done in the presence of patient for accurate shade matching. Intrinsic coloration was done. Silicone material was packed and kept for polymerization for 24 hours in a bench-press. After 24hours, molds were

separated, the silicone prosthesis retrieved, and finishing done.

Try-In & Insertion

The prosthesis try-in was done and as spectacles were opted as mechanical retentive aid to masks the delineation between the prosthesis and the intact tissue surface. Chemical retention was planned using adhesive.

Care: An instruction leaflet with “Do’s and Don’ts” explained in it was given to the patient with an instruction that the prosthetic ear should be replaced as the old one wears off. The skin surface should be maintained clean.

Follow UP: Follow up appointments were planned for one week, one month, three months, six months.

Discussion

The choice between surgical reconstruction and prosthetic restoration of facial defects is a difficult decision. As consistent good results have not been demonstrated in staged surgical ear reconstruction, the prosthetic restoration is the preferred option. There are various techniques for fabrication of ear prosthesis: conventional technique, shaper/tracer technique, photocopying technique, computerised tomography (CT) scanning, magnetic resonance imaging (MRI), 3-D laser scanning, computer numerically controlled (CNC) milling, rapid prototyping, and stereolithography. The prosthesis made by CAD/CAM techniques is better than that fabricated by conventional methods. Unfortunately, taking into account the complexity and the high cost of the equipment needed, these techniques can only be used in well-developed establishments and an academic institution which makes us rely on more conventional techniques for the fabrication of extraoral maxillofacial prosthesis.

The application of osseo-integrated ear implants has changed the patient perception about facial prosthesis because of effective retention and improved aesthetics. However, it requires sufficient healthy bone at the defect

site for implant placement, surgical intervention, cost involvement, and usually a time interval between implant placement and prosthetic rehabilitation. On the contrary, adhesive-retained prosthesis can be placed immediately on a healthy tissue bed, without surgery and is cost-effective. Many techniques are in use for fabrication of wax pattern for adhesive-retained silicone ear prosthesis. One among them is sculpting the pattern by carving the wax. The second is a slicing technique in which the wax pattern is made using slices of wax pattern of normal ear and placing them in opposite directions. The technique used in this methodology was sculpting making it more lifelike appearance. With the advancement in technologies, CAD/CAM is also being used for scanning and three-dimensional reconstruction of ear, but it requires special armamentarium which may not be freely accessible and not cost-effective. The spectacle frame is the most commonly used mode of retention for ear prosthesis as it is easy to attach, require less chair side time, cost effective and can be placed and removed at the will of the patient.

Conclusion

This article emphasizes on the steps in fabrication of ear prosthesis for burn deformity. Prosthodontics is not just confined to replacement of missing teeth but beyond one’s scope. The fabrication of any extraoral maxillofacial prosthesis presents the prosthodontist with several phenomenal challenges. Psychologically, these patients are severely affected either by congenital absence or loss of ear due to trauma or burns. Replacement or reconstruction can be done by surgical or prosthetic approach. However, not all situations are favorable to surgical reconstruction. The goal of the Prosthodontist should strictly adhere to the MM De Vans dictum i.e., perpetual preservation of what remains is of utmost importance than the meticulous replacement of what is lost. It is the duty of the prosthodontist to explain about

the advantages and the limitation of the materials and the treatment outcome especially in meeting the unrealistic expectation of the patient about the prosthesis. In rehabilitation of maxillofacial prosthesis, Prosthodontics is not just a the application of science but mainly an art of recreating the lost structures.

Acknowledgement

I would like to acknowledge Dr. Satyanarayana S V Tammineedi for his constant support, and advices in all the aspects.

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Legend Figures

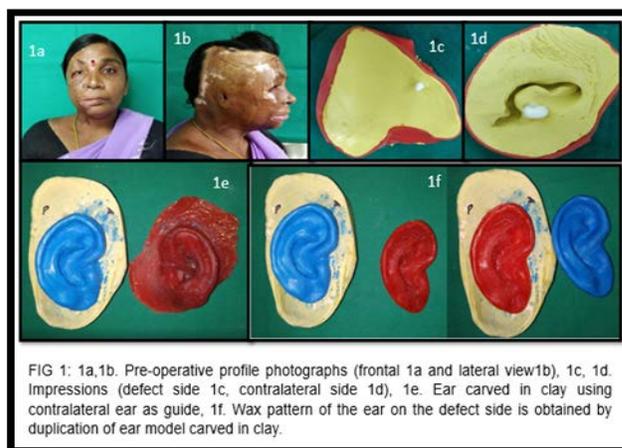


FIG 1: 1a,1b. Pre-operative profile photographs (frontal 1a and lateral view1b), 1c, 1d. Impressions (defect side 1c, contralateral side 1d), 1e. Ear carved in clay using contralateral ear as guide, 1f. Wax pattern of the ear on the defect side is obtained by duplication of ear model carved in clay.



FIG 2: 2a. Clinical Wax pattern trail, 2b investment in plaster, 2c. mould space after dewaxing, 2d. Shade selection, 2e. Final prosthesis, 2f. Post operative photograph