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PARTIAL EAR AMPUTATION – AN ENGIMA FOR PROSTHETIC REHABILITATION

Dental Science

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ABSTRACT

Background: Ear amputation may be partial or complete due to congenital or acquired causes. Patients with Partial ear amputation are challenging as surgical reconstruction or implant prosthesis is difficult to undergo in such cases.
Purpose: The purpose of this case report is to describe a technique for fabrication of adhesive suspended silicone prosthesis for partial ear amputation.
Technique: The current technique provides an idea for simplified fabrication and easy replication of the silicone ear prosthesis through adhesive suspension.
Conclusion: The ear prosthesis obtained through this technique is easy for application, economical and improves aesthetic of the patient thus having psychosocial benefits.

KEYWORDS

partial ear amputation, silicone prosthesis, adhesive suspension

INTRODUCTION:

Face is the reflection of any human being. It is the corner stone to a patient's personality and boosts one's self confidence. Loss of any part of the face brings numerous difficulties in day to day activities along with the psychological insecurity.

Ear amputation could result due to congenital causes, trauma or surgical removal due to pathological causes. The prevalence of ear defects is not known, but the prevalence of being born with a small congenital ear is 1 in 12,500 births.[1] An alternative to surgical reconstruction is the use of silicone auricular prosthesis. These prostheses provide a cost-effective and cosmetically acceptable means of camouflage for patients who decline or postpone surgical reconstruction.[2]

The aim to use a prosthetic ear includes aesthetics, function and preservation of the residual ear tissues. It serves the purpose of increasing the hearing efficiency by 20% as it directs the sound waves towards the auditory canal and maintains a proper environment for the inner ear membrane.

The present case report enlightens on the fabrication of partial auricular silicone prosthesis with adhesive suspension. A patient named Narendrabhai, 35 years male had reported to Department of Prosthodontics, AMC dental college & Hospital, Ahmedabad, Gujarat with the complaint of partial ear loss due to accidental burns at work place before 25 years on the left half of the face, neck and shoulder.

MATERIALS AND METHODS:

The success of partial ear prosthesis occurs when the prosthesis matches in color, shape and adequate suspension method is used.[3] The procedure to fabrication of a partial ear prosthesis is as follows: 1.Recording the impression of the defect and the healthy side. 2. Sculpting on the cast on the side of the defect and its reconstruction by modeling wax or clay. 3. Fabrication of a three part mold and processing with the material of choice. 4. Delivery and retention of the prosthesis with proper suspension.

The patient's defective ear (left side) and the healthy side were both lubricated with petroleum jelly and the hair surrounding the ear were protected with the help of gauze and separated from the working area for making an impression with irreversible hydrocolloid (Figure: 4,5).

FIGURE: 1 - Preoperative frontal view
Figure: 2 - Preoperative defective (left) side
Figure: 3 - Preoperative normal (right) side

Figure: 4, 5, 6, 7 - Primary impression of defected side with irreversible hydrocolloid

A backing of plaster was provided for proper support to the impression material (Figure 6, 7).

The impression was then poured with the dental stone and the positive casts were obtained (Figure 8, 9, 10, 11).

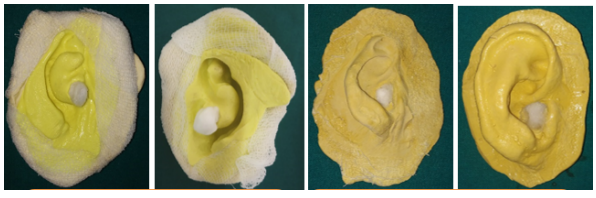

Figure: 8, 9 - Primary impression of right and left side
Figure: 10, 11 - Primary cast (Dental stone) of right and left side

The defect side was sculpted with the help of modeling the clay such that it resembled in position, contour and texture to the normal side. (Figure: 12, 13, 14) Verification was done by measuring the height of the sculpted model with the healthy side. (Figure: 15, 16)

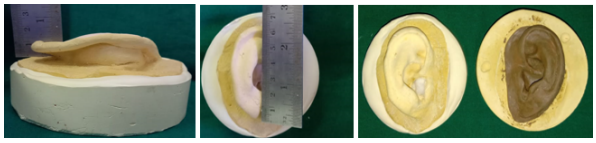

Figure: 12, 13 - Measurements of Normal (Right) side
Figure: 14 - Sculpturing of defected side with modelling clay

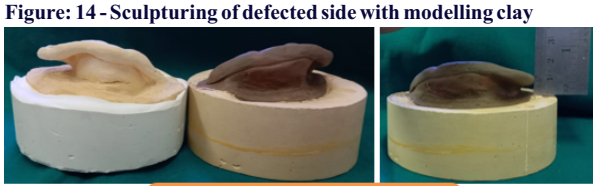

Figure: 15, 16 - Sculpturing of defected side with modelling clay

A three part mold was then fabricated of the sculpted pattern. (Figure: 17, 18, 19)

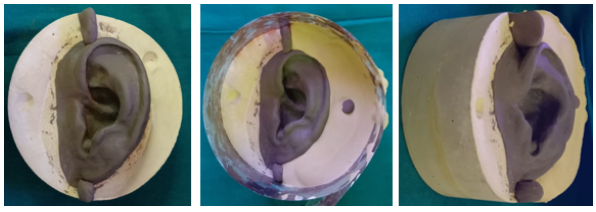

Figure: 17, 18, 19 - Three piece die fabrication

The shade of the patient's skin on healthy side was selected with a shade guide and medical grade silicone (RTV Silicone Elastomer, Product Code A-103) of the appropriate shade was hence selected and processing was done. (Figure: 20, 21, 22, 23)

Figure: 20, 21 - Packing of the die with silicone

Figure: 22 - Packing under pressure

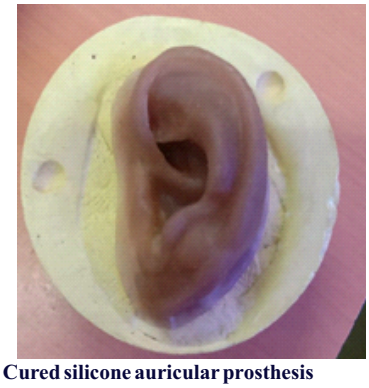

Figure: 23 - Cured silicone auricular prosthesis

The delivery of the prosthesis was done (Figure: 24, 25, 26, 27) and suspension with the help of adhesive was provided (BT-401: Secure Medical Adhesive).

Figure: 24, 25- Before insertion of prosthesis (Frontal and left lateral view)
Figure: 26, 27 - After insertion of Auricular prosthesis (Frontal and Left lateral view)

The patient was explained regarding the proper positioning of prosthesis. The post insertion instructions included regular removal of the adhesive to maintain adequate hygiene. The adhesive has to be presoaked in room temperature water and removed with the help of gauze. If needed alcohol rubbing can be done to remove the remnants of adhesive. [1]

DISCUSSION:

A facial prosthesis provides ideal results when the contour, position, texture and suspension are kept in mind while fabrication which is a blend of artistic and technical task. The primary factor for the success of prosthesis is attributed to the medium of suspension which depends on the size, position and appearance. [4]

The use of adhesives, glasses and surgical techniques to implant the replacement are the general suspension methods in current use. [5,6] Although implants have more benefits than other types of suspension methods, when amputated areas have hair, excessive skin sweating or oily skin, the use of implants is not permissible. The use of implants is also very difficult to achieve successfully/ in people who have lost part of their ear. [7] The prosthesis retained with skin adhesives, anatomical and soft tissue undercuts are more successful due to their ease of application and are comparatively less expensive then implant supported prosthesis. [8]

Silicone elastomeric materials are more commonly used, because they provide better stability and good marginal adaptation, which satisfies patient's cosmetic and aesthetic needs; but the major disadvantage is that the manipulation of silicone requires more complex, advanced and multifaceted techniques which are rather more expensive. [9] The silicone elastomeric material possess excellent physical properties with good heat stability and are chemically inert materials, particularly when they are used in fabrication of prosthesis used to restore body parts. [10]

In the current case, the anterior margin of the prosthesis was recreated to merge with the patient's hair line while the texture of posterior margin was matched with the skin folds and creases thus providing satisfactory aesthetics. The patient expressed his sheer satisfaction towards the prosthesis along with getting accustomed to positioning of the prosthesis.

Conflict of interest: There is no conflict of financial interest.

REFERENCES:

1. Beumer J, Curtis TA and Marunick MT. Maxillofacial reha¬bilitation: prosthodontic and surgical considerations. St Louis, MO: Ishiyaku EuroAmerica, 1996.
2. G. G. G. R. P. R. David F. Butler, "Silicone auricular prosthesis," J Am Acad Dermatol. 2000;43:687-90.
3. Mardani M.A. et al. Prosthetic rehabilitation of a patient with partial ear amputation using a self suspension technique. Prosthetics and Orthotics International. 2011;35(4):473-477
4. Öztürk S, Sengezer M and Zor F. Reconstruction of acquired partial auricular defects by porous polyethylene implant and superficial temporoparietal fascia flap in adult patients. Plast Reconstr Surg 2006; 118: 1349–57.
5. Chalian VA, Drane JB and Standish SM. Maxillofacial pros¬thetics: multidisciplinary practice. New York: Williams & Wilkins Co, 1972.
6. Butler DF, Gion GG and Rapini RP. Silicone auricular pros¬thesis. J Am Acad Dermatol 2000; 43: 687–690.
7. Tanner PB and Mobley SR. External auricular and facial prosthetics: a collaborative effort of the reconstructive sur¬geon and anaplastologist. Facial Plast Surg Clin North Am 2006;14:137–145
8. M. R. J. P. Somkuwar K. Auricular Prosthesis: Patient rehabilitation- a case report. People's Journal of Scientific research.2009;2(2):21-26
9. W. M. J. R. Aziza T. Analysis of the properties of silicone rubber maxillofacial prosthetic materials. Journal of Dentistry.2003; 31: 67-74.
10. Prasad K., Swaminathan A.A., Prasad D.A. Fabrication of a Silicone Auricular Prosthesis – A Case Report. Nitte University Journal of Health Science. 2016;6(1):91-97