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PROSTHETIC REHABILITATION OF THE MAXILLOFACIAL DEFECT WITH AURICULAR PROSTHESIS: A CASE REPORT

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ABSTRACT:

Losing of an ear can be a fatal experience for a patient. The deformed appearance of the face resulting after an oncosurgery or an accidental trauma may results in psychological as well as social embarrassment for the patient. It is a challenge to manage such defect on the face with surgery/artificial prostheses. Prosthetic rehabilitation of auricular defects can be a demanding procedure due to a broad variety of clinical presentations and a wide array of treatment options. The defect can be restored with custom made auricular prosthesis made up of silicon elastomeric material, which gives life-like appearance and also improves the quality of life of the patient. The patient can feel more comfortable and accepted in the social circle. A multidisciplinary approach and team management are essential in providing more accurate and effective rehabilitation of such defects. This article describes an easy technique of using silicone auricular prosthesis, with thin flash extending around the defect for better retention and orientation. Moreover it is more aesthetically acceptable and economically cost effective and such prosthesis helps patients who refuse to undergo second surgery for implant supported prosthesis.

Key words: Accidental Trauma, Loss of Ear, Silicon Prosthesis

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INTRODUCTION:

Rehabilitation of the patients with acquired or congenital deformity of the head and neck region is a most challenging task that requires team approach and multidisciplinary management [1, 8]. The psychological trauma associated with such facial deformity would be unacceptable for the patient. Additionally, it also affects patient's personal, professional and social life. Rehabilitation of such defects may not only provide such individuals with professional and social acceptance but, also improves their quality of life [3] An auricular defect can be caused by several conditions including accidental trauma, congenital malformation, or surgical excision of ear in cancerous conditions. Acquired auricular deformities most commonly result from a wide range of defects associated with accidental/traumatic injuries in certain clinical cases defects caused due to human bite constitutes major cause of such maxillofacial defects [4, 5].

The rehabilitation of lost/severed ear is a major challenge for the head and neck surgeon or plastic surgeon to reconstruct due to the unique anatomical structure of the auricle that exactly resembles the contra lateral ear. Surgical reconstruction of such defects often requires

skillful surgical procedures with time span requiring several months to years. Total excision of ear hampers retention and stability factor of the prosthesis, such type of cases can be managed by implant supported prosthesis [4] and/or adhesive retained auricular prosthesis that can be considered in patients who are not willing to undergo second surgical procedure. Implant retained prosthesis may not be a treatment of choice for all cases because some patients who have underwent oncosurgery along with radiotherapy are not good candidates for implants; in such a condition prosthesis that are supported with spectacles, hair bands, and/or adhesives as a mode of retention is required [6, 9]. This article emphasizes the use of an anatomico-mechanical retentive mechanism with the use of silicone auricular prosthesis.

CASE REPORT:

A 36-year-old male patient was referred to the Department of Maxillofacial Prosthodontics, with a missing right ear. The patient was involved in a road traffic accident, which resulted in almost complete amputation of his right ear. On examination, the patient's right ear was missing (Fig. 1). There was no injury or deformity to the left ear. Different treatment options including cosmetic surgical intervention, implant retained

[2] and adhesive retained prosthesis was discussed with the patient. Patient refused any of the surgical interventions the only treatment option present was retention and stability of prosthesis that can be obtained with adhesives and anatomico-mechanical mode of retention. Thus, it was planned for prosthetic replacement of the missing ear with retentive stud of silicon prosthesis extending into the external auditory meatus. The impression of defective and the non-defective side was made with irreversible hydrocolloid impression material (Fig. 2) [1].

Before making an impression, orientation lines were marked on the face, one line bisecting the middle of the tragus vertically and the other line drawn from the ala to the middle of tragus horizontally. These lines helped in proper orientation of the wax pattern on the cast (Fig. 3). A small piece of cotton, impregnated with petrolatum was used to block the external auditory canal and an alginate impression of defective side and external auditory canal was made. The impressions were washed and disinfected with 2% gluteraldehyde solution, which were later poured with die stone to obtain

the casts. The wax pattern was fabricated over the cast with stud extension, which engages the undercut in the external auditory canal (Fig.4).

Wax pattern was fabricated onto the working cast (Donars technique) [3] the orientation, shape of the ear was exactly matched. During the trial, the position, shape and size of the wax pattern was evaluated and when found satisfactory, it was flaked using triple stage technique (Fig 5). After dewaxing, medical grade RTV silicone (cosmosil) [1] was painted into the cavity of the 3-piece stone mold as a thin semitransparent glaze to simulate superficial vasculature, pigmentation, and surface irregularities. A more opaque base color silicone mixture was then poured to fill the rest of the mold and was allowed to polymerize at room temperature [5].

Finally, the ear prosthesis was recovered from the 3-piece stone mold, trimmed and finished for extrinsic coloration [7]. Subsequently a hole was made in the prosthesis through the stud to facilitate hearing. Later on, the prosthesis was retained [5] with help of adhesives and anatomico-machanical retention mode.



Figure 1. Patient's photograph



Figure 2. Diagnostic impression



Figure 3. Orientation of wax pattern on the working cast



Figure 4. orientation of wax pattern onto the defect



Figure 5. lateral, back and frontal view of the patient

Even though the prosthesis was self retentive because of the stud extending into the external auditory meatus, the spectacle frame can be used for additional retention of the prosthesis. The patient was recalled after 24 hours and was asked whether there was any discomfort or irritation to the tissues. When it was found that patient was comfortable wearing the prosthesis, regular recall check up was scheduled after an interval of 1, 3 and 6 months. At each recall, the

prosthesis was evaluated and the tissues were examined for any irritation resulting from the stud extending into the auditory meatus. It was found that the stud did not irritate the surrounding tissues or hampered the hearing capacity of the patient.

DISCUSSION:

Prosthetic rehabilitation of facial disfigurements with custom made prosthesis may improve the

level of confidence and self-esteem of the patients in the society. Difficulties with facial prosthetic devices may arise due to various reasons that mainly include depth and size of the defect, amount of soft tissue lost during surgical management, location and shape of the defect, the amount of tissue bed remaining after surgery, retentive factor of the area. Hence, the choice of rehabilitation of such defects usually depends on patient's psychological factor, as well as physical dimensions of the defect and the surface landmarks of the defect to ensure satisfactory aesthetic outcomes of the prosthesis [4].

The existing treatment modalities for replacement of missing ear are surgical management and prosthetic management. Surgical reconstruction using autologous tissue, suppose to be the most natural method of restoration of any missing part or tissue of the body. The disadvantage of surgical management is to undergo multiple surgeries over a period of time and the resulting structure may not exactly resemble the contra lateral ear to provide facial balance and to improve esthetics [4, 5]. Prosthetic replacement may provide an anatomically correct and esthetically pleasing prosthesis. The prosthetic rehabilitation of such defect includes adhesives retained, Implant retained or retention with anatomico-mechanical undercuts. Rehabilitation of facial defect with custom made silicon

prosthesis with adhesive is the most economical, conservative and a reversible type of treatment modality [5]. Implant-retained prosthesis may not be an ideal option in majority of cases due to patient's health and psychological factor; in general, patients usually do not opt for implant retained prosthesis because of financial constraints and apprehensions for surgical interventions. Also, the placement of extra oral implant depends on the thickness and amount of the bone in the mastoid region. Hence, replacement of a missing ear by surgical management with implants is not always possible or acceptable to the patient. Therefore, custom made ear prosthesis retained with adhesives and anatomico-mechanical means is a better option in some of these cases.

The most simple and easy method mentioned in this article is suitable option for such patients. Closely adapting silicon prosthesis reinforced with spectacle frame, hair band [1, 5] provides enhanced retention and orientation of the prosthesis. Stud extension into the external auditory canal and flash extension of the prosthesis in and around the defect provides reassurance of closely adapted and well retained prosthesis. The technique mentioned in the present case is mainly indicated where the patient has undergone radiotherapy and

placement of implants are relative contraindicated. The prosthesis extension into the external auditory canal may diminish hearing on the affected side to prevent this patent hole was made in the prosthesis. This procedure also reduces the problem of adaptation of prosthesis.

CONCLUSION:

This article highlights the need for the Maxillofacial Prosthodontist to adopt a flexible and open approach during treatment planning in regard to the patient's socioeconomic as well as anatomic limitations. While many retentive options are available, the adhesive retained prosthesis with stud extension into external auditory canal was considered to be the most appropriate treatment option in this case. The ultimate goal of any maxillofacial rehabilitation should be to satisfy the patient's needs and expectations while at the same time providing the best possible treatment with economically low cost rates.

REFERENCES:

1. Prasan Kumar, Joshi Shubha, Sowjanya P, Shalini BN, Jesudass G An Silicone Auricular Prosthesis Along with Retentive Aids-A Case Report J Clin Diagn Res. Aug 2014; 8(8): ZD18–ZD19.
2. Robin W. C, Adam S C, Frederick C S, Tak W Chau. Magnet retained auricular prosthesis with an implant supported composite bar: A Case report. The Journal Of Prosthetic Dentistry, 2003; 89: 446-9).
3. Prakash Manne, Anne Gopinadh, Naga Neelima Devi, kavya Ravuri, Phani Praneetha B. Auricular Prosthesis after Complication of Surgical Reconstruction of Auricular Defect. Indian J Dent Adv 2013; 5(1): 1130-1133
4. Metin Sencimen, Aydin Gulses (2012). Implant Retained Auricular Prosthesis, Current concepts in plastic surgery, Dr Frank Agullo (ED), ISBN : 978-953-51-0398-1, intech, available form
5. Santosh Yamanappa Nelogi, Naveen Halemane Chandrashekhar, Amit Porwal. Modified Technique For Retaining Silicon Auricular Prosthesis: A Case Report. Eur J Prosthodont. Rest dent. 2011; 19(2): 62-66
6. David F, Gregory G, Ronald P, Rapini. Silicon Auricular Prosthesis. J AM Acad Dermatol 2000; 43: 687-90.
7. Padmanabhan T, Mohamed K, Parameswari D, Sumathi K. Nitin. Prosthetic rehabilitation of an orbital and facial defect: A clinical report. Journal of Prosthodontics. 2012; 20: 200–204.
8. Peter Liacouras, Jonathan Garnes, Norberto Roman, Anton Petrich: Designing And Manufacturing An Auricular Prosthesis Using Computed Tomography, 3-Dimensional Photographic Imaging and additive Manufacturing : A Clinical Report . The Journal of Prosthetic Dentistry. 2011; 105: 78-82.
9. Ciocca L, Scotti. Residual Facial Disfigurement after the Ablative Surgery of A Lachrymal Gland Carcinoma: A Clinical Report of the Prosthetic Rehabilitation. Indian Journal of Cancer. 2004; 41(2): 85-88.