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A CASE REPORT

PROSTHODONTIC AVENUE FOR REHABILITATION OF AN AURICULAR DEFECT- A CASE REPORT

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ABSTRACT

The most common congenital auricular defect is microtia. Some patients do not prefer surgical intervention and may not be able to afford very expensive treatment. A silicone based auricular prosthesis was fabricated at a very low cost. This article presents an outline of the procedure involved in constructing an ear prosthesis to reduce disfigurement and restore the social functioning of the patient.

INTRODUCTION

Auricular defects can be acquired or congenital and can result in the patient's psychological and social behavioural variation (Banerjee, 2012); they are the second most common craniofacial malformation after cleft lip and cleft palate. The most common congenital auricular defect is microtia. It is a congenital deformity of the pinna, which can be unilateral or bilateral and occurs in about one out of 8,000 - 10,000 births. In unilateral microtia, the right ear is most typically affected. It is usually associated with atresia of the external auditory canal (Ramachandran and Singh, 2012). Reconstructive surgery is limited by the age and medical condition of the patient, insufficient residual tissue, compromised vascularity due to irradiation and patient's unwillingness to undergo another surgical procedure (Rani and Gambhir, 2015). Although plastic and reconstructive surgical techniques have improved, there still remain patients in whom prosthetic replacement is advisable for facial defects (Mekayarajjananonth *et al.*, 2000). Prosthetic rehabilitation may produce an anatomically correct and esthetically pleasing prosthesis using acrylic or silicone materials. The material used for the fabrication of the prosthesis has advanced from metals and natural substances to silicone. Silicone elastomers are an advanced and well accepted material of choice as they are such as biocompatible,

easy to use and color and they have properties similar to that of skin (Adyin *et al.*, 2008). The success of an auricular restoration depends greatly upon various retentive aids. The retention can be achieved by various means such as mechanical (Eyeglass earpiece, Acrylic buttons, Magnets, Retentive clips, Cast clasps), Osseo integrated implants and tissue adhesives (Kumar *et al.*, 2014).

Case Report

A 10 year old patient registered to the department of prosthodontics with history of unilateral missing of right ear since birth, and desired to go for replacement of missing ear. On examination the patient was having unilateral right ear microtia (Grade I) (figure I,II). And left ear was normal in size and shape, no gross facial asymmetry was found. Patient was devoid of any other systemic disorders and the family history was found to be irrelevant. She had earlier consulted many centres before and was offered surgical correction as option which she could not take because of its invasiveness and fear. She was eager to have a prosthetic replacement of the missing parts of the ear but was at the same time her dad concerned about his ability to finance such a procedure.

Procedure

While making the impression a custom barrier with boxing wax sheet (DPI, Mumbai) (Figure III) was used to control the undesirable flow of the material, Petroleum jelly were applied

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to the hair surrounding the area, The external auditory meatus was blocked with a cotton pellet, Patient was in supine position was asked to in respective lateral position for making the impressions. Impressions were made with irreversible hydrocolloid impression material (Algitex, DPI, Mumbai) (Figure IV) supported by gauge and plaster of paris and poured in type III dental stone to achieve diagnostic models. Patterns was fabricated by sculpting wax using mirror image of the patients anatomical ear as reference. Before the carving is begun, the model was soaked in water to allow easy removal of wax pattern. Type 3 base plate wax (Modelling wax; Deepti, Dental Products of India Pvt Ltd, Ratnagiri, Maharashtra, India) was used to sculpt the wax pattern for ear prosthesis. The prepared wax pattern was adapted onto the stone model (Figure V) and then it was checked for accuracy of fit and aesthetic on the patient's face (Figure VI&VII). The wax pattern was invested in a dental flask using three pour technique. Routinewax elimination was done. After the complete removal of wax, Silicone is the material for choice for facial prosthesis because of its flexibility and life like appearance. In this case, RTV silicone (MP Sai Enterprise) was used. Intrinsic stains were used for the prosthesis coloration as these are more colour stable and provided better aesthetic results. The eyeglass of proper fit (Figure VIII) was selected and then the polished auricular prosthesis was attached to the eye glass with auto polymerizing resin in the desired orientation and adaptation. (Figure IX,X)



Figure I.



Figure II



Figure III.

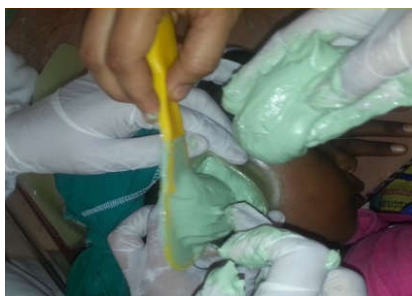


Figure IV



Figure V



Figure VI



Figure VII



Figure VIII



Figure IX



Figure X

Maintenance

The patient was instructed to be careful when removing the prosthesis so that the thin margins do not tear, not to wear the prosthesis during sleep so that air can circulate to maintain the skin health, If worn continuously, the dark moist environment underneath the prosthesis is ripe for bacterial and fungal growth, leading to inflammation and infection. It should be

stored away from sunlight to prevent discoloration and degradation of the prosthetic material. Recall visit of 1 week, 1 month and 6 months was followed and found that patient was satisfied with the given prosthesis.

DISCUSSION

The prosthodontist plays an important role in offering expertise in the prosthetic reconstruction and rehabilitation of the external ear (Wang *et al.*, 1999). In this case Rehabilitation with a prosthetic ear matched to the contra lateral ear provides a better morphologic result (Russel *et al.*, 1999). Auricular prosthesis surely regains the patient's psychological and social behaviour towards facing challenges of life. Auricular defects can be reconstructed with autogenous tissue grafts (Reddy *et al.*, 2004). These surgical procedures are technically demanding and are carried out in several steps. In addition, patients with acquired total or subtotal auricular defects (due to trauma or tumour surgery) and hemifacial microsomia exhibit varying degrees of skeletal hypoplasia, which may make surgical reconstruction very complex, are ideal candidates for prosthetic rehabilitation (Thorne *et al.*, 2001). Despite these limitations spectacle retained auricular prosthesis provide a simple and cost effective but aesthetically acceptable mode of rehabilitation. For patients who refuse surgery or are otherwise not good candidates for reconstruction because of medical problems, silicone auricular prosthesis should be the preferred choice of treatment.

Conclusion

The aim of any maxillofacial rehabilitation is to satisfy the expectations and needs of the patient with best possible mode of treatment. Moreover patient is not willing for invasive implant surgery.

The procedure suggested in this case report provides alternative to implant retained prosthesis and adhesive retained prosthesis. It was acceptable to the patient because good retention and satisfactory appearance.

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