

Case Report

Dental implant-retained auricular prosthesis

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ABSTRACT

Absence or loss of facial structures causes functional deficits and enormous psychological distress, so rehabilitation is necessary. However, facial prostheses have some difficulties due to mobile underlying tissues and retention. We used dental implant instead of conventional maxillofacial implant and safe on four prosthetic systems which is used in over dentures for retention of auricular prosthesis.

Key Words: Dental implant, maxillofacial prosthesis, silicone

INTRODUCTION

Absence or loss of facial structures causes functional deficits and enormous psychological distress, so rehabilitation is necessary.^[1] Prosthetic rehabilitation can improve function and self-confidence. However, facial prostheses have some difficulties due to mobile underlying tissues and retention.

Different methods have been improved to solve the retention problem. External devices for example glasses are one possibility.^[2] Skin adhesive is an old method and causes skin reaction in some cases.^[3] It is difficult to wear and take off adhesive retentive prosthesis during daily actions such as bathing and swimming due to add and remove adhesive materials, repetitively. Osseointegrated implant is another possibility for retention and because of natural sense of prosthesis, ease of use,^[4] long life time,^[5] and retention during daily activities is accepted by patient.^[5,6] Different variations can affect maxillofacial prosthesis successfulness. For example, durability

of material used in prosthesis as exposed to water and other chemical component such as soap would be reduced.^[7] Hence, implant-retained prosthesis with attachment such as bar or magnet which are removable when it is necessary is favorable^[8,9] and increases patient satisfaction.^[10]

CASE REPORT

A 22-year-old male with left congenital ear loss [Figure 1] was referred to the Dental and Maxillofacial Prosthetic Department of Dental School of Isfahan University of Medical Sciences. First of all, a surgical stent should be made. The impression was made with irreversible hydrocolloid from both ears. Hence, a wax-up for left ear was made to predict proper position of implants to achieve natural future prosthesis and according to the right ear position and form. The wax-up was flaked to make surgical stent. Computed tomography evaluation of mastoid bone

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was done in coronal, sagittal, and axial planes. The implants were placed by one-stage surgery.

Two 6 mm length and 4.2 mm width dental implants (SIC max screw implant, Birmanngasse, Switzerland) were placed in the mastoid bone, and the thickness of soft tissue was reduced [Figure 2]. For prosthetic procedure, we used Safe On Four system because bar and bridge abutment could be used as a transcutaneous component and was fixed with a screw separately from second part of abutment. Immediately after placement of fixtures, bar and bridge abutment of Safe On four system (SIC Fixation Postsafe on Four, GH 3.0 mm Birmanngasse, Switzerland) was closed to the fixtures and proper healing screw (SIC Gingiva Shaper Safe on Four, cylindrical) was closed.

After 3 months impression copings (SIC Transfer Abutment Safe on Four Open Tray Technique, Birmanngasse, Switzerland) were closed to the abutments and the impression was made at abutment level. The cast was prepared and UCLA abutments (SIC Crown Base Safe on Four, for nonprecious alloy, Birmanngasse, Switzerland) were closed to the first abutment analogs. Then, a round plastic bar was attached to UCLA abutments. The bar was prepared for casting. After preparation of bar, proper housings and clips were selected. Acrylic resin was placed on housings and bar to make substructure for silicon. A thin layer of wax was formed under acrylic substructure to provide dry environment around skin surface of abutment. A wax-up was made on this substructure. Then, the wax-up was tried on the face and was accepted by the patient. The waxed model was flaked. The primer was rubbed to the acrylic substructure to gain proper bond to silicon. The silicone (Cosmesil Series Material, High Compliance Elastomer, PRINCIPALITY, Newport, Wales, UK) which was colored with intrinsic pigments (Cosmesil Master color, PRINCIPALITY, Newport, Wales, UK) and flakes (Cosmesil FLOCKING, PRINCIPALITY, Newport, Wales, UK) similar to the right normal ear was entered to the flask. After setting completed, extrinsic pigments (Cosmesil Dry Pigment, PRINCIPALITY, Newport, Wales, UK) were used to mimic surrounding tissues colors. The final prosthesis is shown in Figures 3 and 4. The case was followed for 18 months.

DISCUSSION

Extraoral implants in mastoid region have very high success rate near to 100%.^[11,12] The implant-retained



Figure 1: Primary view.



Figure 2: Implants placement.



Figure 3: Final prosthesis skin surface.

facial prosthesis provides more satisfaction rather than adhesive retained due to ease of use and proper retention in daily activities.^[9] Implants commonly used in facial prosthesis are extraoral implants which are much more expensive than conventional dental implants. Patients with maxillofacial defects



Figure 4: Final view.

often have financial burdens because these patients often are unemployed as a result of their diseases.^[1] In this case report, we used dental implant because of financial considerations and better accessibility of dental implant components in surgery and prosthesis procedures. Our patient had properly large deficiency so longer 6 mm dental implants had some advantages versus short 3 mm extra oral implants to provide proper anchorage for this heavy auricular prosthesis.^[13] We used bar and bridge abutment in the role of transcutaneous component, and because of fixation with an independent screw, other steps could be run without need to take out of this transcutaneous component. Placement of implants in antihelix part of future auricular prosthesis caused hiding of retentive components easy and provided esthetic and natural view which was accessed through a surgical stent which mimics final auricular prosthesis.

CONCLUSION

In this case report, we used dental implant and safe on four prosthetic systems for an auricular prosthesis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and

due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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