

Rehabilitation of an acquired auricular defect using adhesive retained silicone ear prosthesis: A Case report

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ABSTRACT: A prosthetic rehabilitation of various facial deformities like of ear, eye and nose are under the scope of maxillofacial prosthodontics. With better understanding of material available for maxillofacial prosthesis its possible to rehabilitate facial deformities with life-like appearance and thus enhance the quality of life. Auricular defect can either be congenital or acquired. This case report is an attempt to rehabilitate ear deformity sustained by burn injury with adhesive retained auricular prosthesis.

KEY WORDS: Ear-prosthesis, acquired auricular defect, adhesive-retained

Introduction:

Rehabilitation of missing or deformed facial structures has many challenging aspects for a maxillofacial prosthodontist. Maxillofacial defects have profound effect on the quality of life of a patient. Auricular defects can be congenital, manifesting in forms of deformity of an ear, or acquired due to accidental trauma, burns or malignant diseases. [1,2]

Surgical reconstruction of such defects has a limited role and are complex and presents with many challenges. This article presents a procedure to rehabilitate auricular defect due to burn injury.

Auricular prosthesis is a removable maxillofacial prosthesis that artificially restores part or the entire natural ear. [3]

Auricular prosthesis can be retained by various means namely adhesives, implants, spectacles, magnets & clips etc. [4]

Auricular prosthesis not only imparts esthetic benefits but also helps in function by enhancing the hearing ability and have

a profound psychological benefit to the patient. [5]

CASE REPORT:



Figure 1: Pre-Operative

A 50-year-old male patient reported, complaining of ear deformity resulting from burn injury 8 years ago. History revealed that the patient had diabetes for 10 years and under medication for the same. He had suffered burn injuries on right side of his face 8 years back. On examination on the right side of the face, patient had sustained burn injuries with scar formation and right ear with helix and lobe part of external ear being deformed with intact tragus and external auditory

meatus (Figure: 1). Patient's hearing capability was intact on the effected side. As per patient's preference and based on clinical examination, a silicone auricular prosthesis to be retained with adhesive was decided for the patient to fulfill his wishes for the esthetic correction of the right ear.

TECHNIQUE:

Impression:

For making impression, hydrocolloid impression material was selected. A wax mold was fabricated to contain the impression material while making impression. The surrounding area around ears was lubricated with Vaseline, to prevent adhesion of impression material with skin and external auditory canal was blocked with cotton plugs to prevent impression material from entering the canal.

Impressions of both ears (healthy & deformed ear) was taken. A positive replica of both the ears was obtained by pouring the impression with Type III dental stone.

Wax Pattern

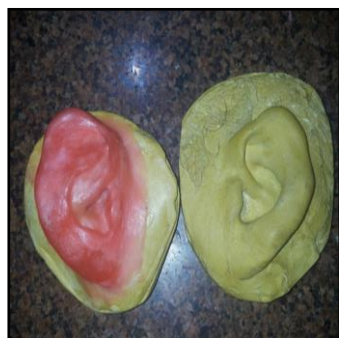


Figure 2: Stone cast with wax pattern

Taking healthy ear (left side) as guide the wax pattern for the ear of effected side (right side) was sculpted using modeling

wax. To impart a prosthesis with natural looking appearance, ear of healthy side (left side) of patient himself was taken as a guide instead of sculpting the ear by donor technique that is taking reference from patient's kin or sculpting from scratch free hand.

Flasking & Dewaxing

Trial of wax pattern was done; the wax pattern was sealed to the cast model and the edges of the wax pattern was thinned so that it merges with the skin when prosthesis is placed. The wax pattern was flaked using three pour technique.



Figure 3: Flasking

De-waxing was done by placing the flask in boiling water (100°) for 30 minutes to ensure complete elimination of wax material. Separating media was applied while the gypsum material was warm, and mold was allowed to dry completely.

Shade Matching & Packing



Figure 4: Silicone pigmentation & Packing

Under natural day light, in patient's presence shade matching was done and photographs were also taken. A medical grade heat temperature vulcanizing (HTV) silicone (Cosmesil) was packed in mold cavity obtained after de waxing procedure. The base color was dispensed, color pigments and flocks were mixed in intrinsic coloration. Small amount of silicon of different skin shade was placed over outer margins to mimic natural skin colors, then main skin shade was applied over entire mold area. After packing of silicone material, flask was placed in boiling water for an hour for polymerization.

Finishing

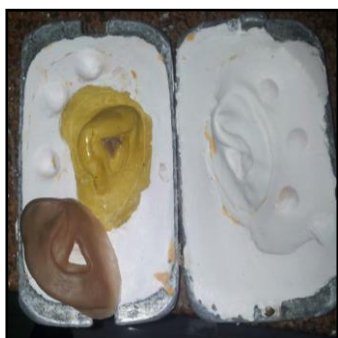


Figure 5: Auricular prosthesis after curing

Completely polymerized silicone ear

prosthesis was retrieved, cleaned and excess flash was trimmed. Extrinsic coloring agents (Cosmesil) were applied wherever required.

Final Placement



Figure 6: Final placement of prosthesis

Final prosthesis was tried on patient, necessary adjustments were done. Margins of prosthesis were sealed using adhesive (Telesis-5 Silicone adhesive). Maintenance instructions given to the patient, instructions regarding application of adhesive and cleaning of prosthesis were explained to the patient in detail. Follow-up was done after a week. The patient was able to use the prosthesis comfortably and was satisfy with the prosthesis.

DISCUSSION:

Auricular defects can be rehabilitated either surgically or prosthetically. In majority of cases, prosthesis reconstruction is a preferred choice, given many disadvantages of surgical reconstruction. In the recent past techniques have been introduced for fabrication of auricular prosthesis like rapid prototyping, stereolithography, CAD-CAM technique, CT Scan imaging, MRI etc.

Retention of prosthesis plays a pivotal role in patient acceptance and compliance of prosthesis. Craniofacial implants provide effective retention along with good esthetic result. However, for placement of implants prerequisites like presence of healthy bone, surgical placement, time, cost is matter of concern.

Other retentive modes like utilization of mechanical undercuts, mechanical tools like (Spectacle frames, headbands etc.) or skin adhesives can also be successfully employed in retention of auricular prosthesis. [6]

Adverse tissue reactions, discoloration, marginal deterioration of the prosthesis, loss of adhesion because of perspiration are disadvantage of skin adhesives.

Craniofacial implants are excellent mode of retention as well as auricular prosthesis fabricated using CAD CAM technology, but these modalities are expensive.

In this case adhesive retained prosthesis was preferred considering patient's medical history and patient's desire to opt for non-surgical option and is cost effective and has yielded a satisfactory outcome.

CONCLUSION:

Surgical intervention, patient choices and patient's medical status may contraindicate placement of craniofacial implants in patient's with auricular defect. In such cases adhesives and utilization of mechanical undercuts serves as a good mode of retention for the prosthesis.

Rehabilitation of patient with auricular defect not only yields esthetically pleasing results but also renders great psychological benefit to the patient and helps to live life of normalcy in the society.

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