

Prosthetic Rehabilitation of a Postsurgical Case of Intracranial Meningioma

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Abstract

A case report describing the rehabilitation of a postsurgical case of intracranial meningioma that resulted in orbital exenteration and facial palsy of the left side of face has been described. The aim was to restore aesthetics and uplift the psychological status of the patient by fabrication of a mechanically retained acrylic orbital prosthesis and a two-piece complete denture with a bar and clip retained cheek plumper.

Key Words: Exenteration, Orbital prosthesis, Cheek plumper

Introduction

Surgical interventions to treat neoplasm of cranial regions may be associated with maxillofacial defects and facial deformities inclusive of, but not limited to orbital exenteration [1-5] and facial palsy [6-9]. This may result in aesthetic disfigurement, functional inability and psychological setback to such patients.

The current case report describes rehabilitation of a patient with functional and aesthetic disfigurement occurring subsequent to surgical intervention in management of intracranial meningioma (resulting in orbital exenteration and facial palsy). The ultimate aim was to improve the quality of life of patient.

Case Presentation



Figure 1. Pre-operative view.

A 65-year-old male patient had reported with the complaint of unaesthetic appearance due to missing eye, sunken in cheeks on the left side and difficulty in eating due to absence of all teeth. Patient had been operated for intracranial meningioma one year back that had resulted in orbital exenteration of left eye and facial palsy on left side of the face. Extraoral

examination showed a well-defined ovoid shaped orbital defect with an undercut (of depth 1 cm) in supraorbital margin (*Figure 1*). Facial asymmetry was noted with sunken cheeks on the left side along with restricted perioral movements. Patient was completely edentulous with obliterated left vestibules.

The treatment plan included a mechanically retained orbital prosthesis made in heat polymerized polymethylmethacrylate (PMMA) resin to restore the orbital defect and complete denture prosthesis with detachable cheek plumper retained by a bar and clip.

Orbital prosthesis

For recording the primary impression, indelible marker (Artispot, Bausch, Germany) was used to mark lines on the forehead corresponding to the glabella, external palpebral fissure, internal palpebral fissure and centre of the pupil. Petroleum jelly was applied (for facilitating removal of impression). A conformer was fabricated by moulding and adapting fused impression compound (Y Dents, MDM corporation, India) over the bilateral orbital regions intended to carry irreversible hydrocolloid (Jeltrate chromatic, Dentsply, USA) (*Figure 2*). After obtaining a facial moulage in gypsum class III (Orthokal, Kalabhai, India), self-cure acrylic resin (DPI-RR) was used to create base of trial prosthesis. A prefabricated eye shell button was selected by matching it with the patient's right eye and adjunct anatomy was carved in modelling wax (Y Dents, MDM Corporation, India). The trial prosthesis was verified for pupil orientation, position and visibility of sclera on straight gaze when compared to right eye. To enhance stability of the prosthesis, an extension was made on root of nose to allow seating of nose-pad of spectacle (*Figure 3*). The intaglio surface of trial prosthesis was coated with tray adhesive (Coltene Whaledent, USA), and light body addition silicone (Affinis, Coltene Whaledent, USA) was used to remarginate the trial prosthesis. Putty consistency addition silicone (Affinis, Coltene Whaledent, USA) was adapted on cameo surface to pick up the prosthesis (*Figure 4*) that was directly invested in gypsum. One part of clear heat cure acrylic polymer (Trevalon HI, Dentsply, USA) was mixed with three parts of pink colored polymer. Oil based stains (Camel, Kokoyu Camlin Ltd, India) were used for matching the shade with skin of the patient. After creation of the desired shade, heat cure acrylic was packed in mould created after dewaxing. Long polymerization

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cycle was performed to cure the prosthesis. The prosthesis was finished followed by external staining. Prosthetic eyelashes were attached to the fabricated prosthesis. The anatomic undercut in the superior part of the defect was used to retain the prosthesis. Additionally, the nose pad of the spectacles was seated over the nose extension of prosthesis and the two were connected by drilling holes; uniting with two screws (of 5 mm length) using cyanoacrylate resin (Figure 5).

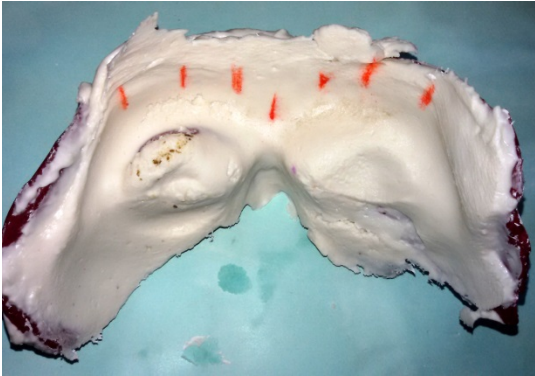


Figure 2. Primary impression of orbital defect.



Figure 4. Functional impression for orbital prosthesis.



Figure 3. Wax up trial of orbital prosthesis.



Figure 5. Post-operative view.

Complete denture with a detachable cheek plumper

Routine complete denture steps were performed till trial stage. At trial stage, tin foil was adapted on the cameo surface of the buccal flange of upper denture. Ovoid shaped cheek plumper was designed in baseplate wax (cavex, UK) over the tin foil extending from first premolar region till the last molar region. The extent of the cheek plumper coincided with occlusal one third of the artificial teeth inferiorly and 2 mm short of the denture border superiorly. The thickness was decided by trial and error till satisfactory support to the cheeks and acceptable aesthetics was obtained without interfering with jaw movements. The length and position of the cast Hader Bar (Rhein 83, India) was decided by the size and position of the cheek plumper in wax. The cast Hader bar was embedded on the cameo surface of the buccal flange of the denture and tentative position of the clips was decided. Tin foil was

readapted over the embedded bar and clip. The waxed up cheek plumper was softened and seated over the tinfoil covering the bar and the clip to form a groove and notch, corresponding to the bar and clip respectively. The clips were removed from the bar and the trial denture (with the cast bar) was processed in heat polymerized PMMA resin (Figure 6). Separate polymerization was carried out for the cheek plumper and clips were picked up in self-cure PMMA resin (Figures 7 and 8).



Figure 6. Upper and lower complete denture with Hader bar on cameo surface of upper denture.

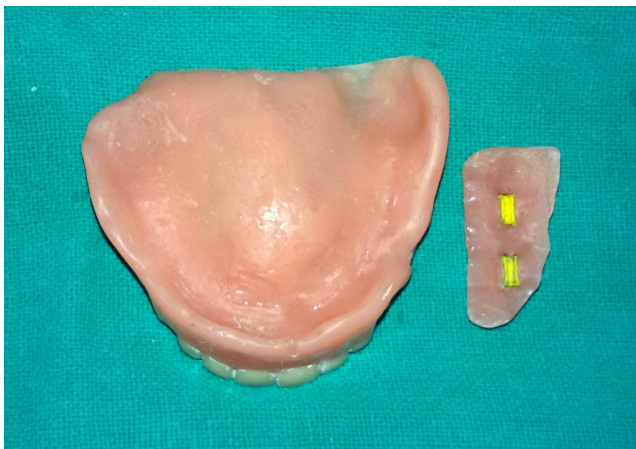


Figure 7. Two parts of upper complete denture.



Figure 8. Cheek plumper attached to upper complete denture.

Eight months follow up showed no prosthetic complication and optimal patient satisfaction.

Discussion and Conclusion

Post-operative management of patients with surgical sequelae resulting in combined extraoral defect and intraoral limitations can be a challenge. In the current case, an orbital defect resulting in orbital exenteration of left side was rehabilitated by a mechanically retained heat polymerized polymethylmethacrylate resin. [3-5] Polymethylmethacrylate is less prone for surface deterioration which is of special relevance in geographic regions where heat and sweat can deteriorate the silicone prosthesis. The design was kept simple for easy to use and hygiene maintenance. Also, the prosthesis was economical for reasons of affordability. The complete denture planned was in two pieces. The attachment favored easy placement, removal, maintenance and a simple design with ease of reparability in case of damage. One-piece complete denture was avoided to prevent increased weight (that can hamper stability) [6-9] and difficulty during insertion. Drawback of the prosthesis is increased dependence on patient compliance during prosthesis placement and removal.

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