

## Case Report

# Rehabilitation of a partially edentulous woman with facial paralysis

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Paralysis of the facial nerve can be due to a number of etiologies. Lower motor neuron palsy can lead to paralysis of the entire half of the face. The condition may resolve spontaneously, however, the resolution is closely related to the severity of symptoms, etiology and the age of the patient. The treatment is usually directed towards a palliative management of symptoms and prevention of future complications. The incomplete closure of the eyelid predisposes the patient to corneal infection. The current article presents one such partially edentulous patient who was collectively managed by ophthalmologists and prosthodontists. A modification in the buccal flange of upper denture contributed to improve the appearance of the patient.

**Key words:** Cheek support with complete dentures, immediate dentures

## INTRODUCTION

Paralysis is the temporary suspension or permanent loss of function.<sup>[1]</sup> The facial or VII cranial nerve is a mixed nerve. It forms the motor supply to the muscles of facial expression, the stapedius and tensor veli palatini muscles. It also carries the taste or gustatory sensations from the anterior two thirds of the tongue and parasympathetic impulses to the submandibular salivary and lacrimal glands.

The etiologies leading to facial paralysis may be birth trauma, developmental or inherited, infections such as herpes zoster, idiopathic (Bell's palsy), neoplasm affecting the facial nerve and traumatic like iatrogenic injury, temporal bone fractures and facial wounds.<sup>[2]</sup> The diagnosis is confirmed by tests used to evaluate the functions of facial nerve like, the blink test, facial movements, stapedial reflex testing, schirmer test and testing of taste in the anterior two thirds of tongue.<sup>[3]</sup>

Denture flanges when properly moulded, facial musculature can aid in the retention of prosthesis. In cases of paralysis, such a contribution is minimal. In addition, restoration of facial symmetry places additional demands on the prosthesis. Prosthodontists have previously restored the patients of hemiplegia, Bell's palsy, paralysis, etc. to improve the appearance with modifications of the dentures like padding for the buccal flanges, spring loaded acrylic flange extensions.<sup>[4,5]</sup>

## CASE REPORT

A 75-year-old woman was referred to the Department of Prosthodontics, Government Dental College, Bangalore with a complaint of few missing teeth, inability to chew and dropping of food from the right corner of mouth. She gave a history of surgery in the right mastoid region, 7 months back. Medical records revealed the excision of cerebellopontine angle tumour, following which she developed asymmetry of face and inability to close her right eye completely.

On extra-oral examination, asymmetry of the face was noticed in the corner of mouth dragged to the left side. The patient was unable to wrinkle the right forehead. There was an air leak from the right corner of mouth and no objective loss of sensation. The paralysis could be classified as House-Brackmann grade VI [Figure 1].<sup>[6]</sup>

Intra-oral examination revealed, the patient was partially edentulous with only the left upper premolars and left lower second premolar, first and second molars. The maxillary ridge was smooth and well-rounded, covered with firm mucosa. The palatal vault was shallow, U-shaped, with House's class-I hard and soft palate relation and class-I posterior palatal seal area. The mandibular ridge was smooth well-rounded posteriorly and resorbed, knife-edge ridge anteriorly. Lateral throat form was Neil's class-I. The remaining teeth were all clinically firm, however, attrited. There was Glickman grade-II recession of gingiva<sup>[7]</sup> in the



**Figure 1:** Preoperative intra-oral photograph



**Figure 3:** Postoperative intra-oral photograph



**Figure 2:** Preoperative extra-oral photograph



**Figure 4:** Postoperative extra-oral photograph

buccal aspect of mandibular first molar with furcation involvement [Figure 2].

The patient's general health was found to be satisfactory. A complete immediate denture was planned for the maxillary arch. When the teeth are extracted, a better peripheral seal would increase the retention of the denture. A decision was made to restore the lower arch with plate removable partial denture (RPD).

Subgingival scaling was done for the remaining teeth to improve their periodontal health. The furcation involvement area was made self-cleansing. The occlusal surfaces of the teeth were modified to improve the occlusal plane. Maxillary and mandibular study casts were prepared.

Customized trays were constructed using auto-polymerizing polymethyl methacrylate resin (DPI-RR, DPI, Mumbai) for the upper and lower arches, covering the existing teeth and checked for extension. The trays were border moulded and final impressions made using irreversible hydrocolloid (Tropicalgin, Zhermack, Germany). Master casts (Goldstone, Asian chemicals,

Mumbai) were obtained. Temporary record bases using shellac base plate (Supernal, S.D Dental Corporation, Lucknow) and modelling wax (Hindustan, Hindustan Dental Products, Hyderabad) rims were constructed. The rims were adjusted for adequate lip support and visibility. Existing occlusal vertical dimension was maintained as determined by existing upper and lower teeth.

Artificial teeth (Premadent, Dr. Jagdish Lal Sethi, Delhi), were arranged on the occlusion rims and try-in completed. During this stage, modelling wax (Hindustan, Hindustan Dental Products, Hyderabad) was added incrementally to the right buccal flange of the maxillary denture till adequate support to the right cheek was obtained. After try-in, the maxillary premolar teeth were cut off from the cast. Artificial teeth were arranged in their place and wax up was completed. The upper complete denture and the lower RPD were processed using heat cured PMMA resin (Trevalon, Dentsply, India). The dentures were finished and polished.

The maxillary premolars were extracted under local

anesthesia, sutures were placed and the disinfected dentures were inserted. The occlusion was refined by selective grinding. Necessary instructions were given. The patient was recalled after 24 h. The final corrections in occlusion were made and the patient discharged with necessary instructions for use and maintenance. The sutures were removed after 1 week and maintenance instructions reinforced.

The patient was recalled at intervals of 1, 3 and 6 months. The patient is happy and comfortable as she can chew better. The improved appearance although not initially desired, was well appreciated by the patient [Figures 3 and 4].

## DISCUSSION

Facial paralysis is known to recover spontaneously. However, such recovery is closely related to the history and severity of presentation of symptoms. In grade-VI presentation, recovery is usually slow and incomplete. In such cases, palliative treatment for symptoms and prevention of future complications are the methods of choice.

The treatment of the paralyzed eyelid is mainly directed towards prevention of corneal ulceration. Although there are several surgical methods, a medical treatment was considered appropriate in the present case. She was prescribed eye drops (Bioff, Biochem Pharmaceutical Industries Ltd.) every 1-2 hr. during the day. In addition, cellophane wrap for occlusive dressing of the eyelid with lubricating ointment (Lacrigel,

Deep Care Health Pvt. Ltd.), at the periphery was prescribed for bedtime. She was advised to use sunglasses with side panels while outside.

With the symptoms of the eye taken care of by the ophthalmologists, only the restoration of intra-oral status for mastication and appearance of the lower half of the face is the prosthodontist's concern.

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