

# REHABILITATION OF A HEMIMANDIBULECTOMY PATIENT- A CASE REPORT

\*Mohammed Mubasheeruddin, \*\*S.C. Nagaral, \*\*\*Mohammad Nabeel Kalburgi,  
\*\*\*\*Lijeena Ann Benji

\*Prosthodontist and Implantologist, Hyderabad, \*\*Professor and HOD, Department of Maxillofacial Prosthodontics, Al Badar Dental College & Hospital, Gulbarga, Karnataka, India. \*\*\*Prosthodontist, Bijapur, \*\*\*\* P.G. Student, Department of Maxillofacial Prosthodontics, Al Badar Dental College & Hospital, Gulbarga, Karnataka, India. | Corresponding author: Dr Mohammed Mubasheeruddin, Email: dr.mohammedmubasheeruddin@gmail.com

## Abstract:

*Fabrication of a successful prosthesis in hemimandibulectomy patients is a challenging task. Segmental resection of mandible results in deviation of the remaining segment of the mandible towards the resected side resulting in facial disfigurement, difficulty in speech, swallowing, respiration, mastication and certain mandibular movements are effected. Such condition develops a disturbed psychological state, affecting the daily life of the patient. The primary goal of the treatment was to achieve; facial aesthetics, phonetics and restore the function. A well fabricated prosthesis along with good patient co-operation can help to tackle such scenario more effortlessly.*

**Key Words:** Hemimandibulectomy, Non-Odontogenic tumour, Provisional removable prosthesis, Mandibular cast partial denture, Rehabilitation.

## Introduction

Maxillofacial prosthodontics is the world of art and science which is full of challenges. One has to strive hard for getting the natural function and

lifelike appearance of the prosthesis since every human has the divine right to look human. The unilateral loss of mandibular continuity due to surgery results in mandibular deviation toward the defective side. The earlier the mandibular guidance therapy is initiated in the course of treatment, the more successful is the patient's definitive occlusal relationship. Obtaining proper inter-cuspation is the key in achieving good occlusion. Segmental resection of the mandible results in psychological, physiological, aesthetic problems. Prosthodontic treatment along with certain exercise program helps in reducing mandibular deviation and improving masticatory efficiency. This case report describes prosthodontic management of a hemi-mandibulectomy patient, rehabilitated by a provisional removable prosthesis followed by a definitive mandibular cast partial denture designed to fulfill the patient's needs and requirements.

## Case Report

A 23-years-old male patient reported to the Department of Maxillofacial Prosthodontics, Al-Badar Dental College & Hospital, Gulbarga, with

a chief complaint of difficulty in chewing, facial asymmetry, deviation of the jaw and wants to get the teeth replaced. Past medical history revealed that the patient was diagnosed with Cemento-Ossifying Fibroma (Commonly seen in mandible, with 70-90% of all cases. Clinically, these tumors manifest as a slow-growing intrabony mass that is normally well delimited and asymptomatic – though over time the lesion may become large enough to cause facial deformation), for which the patient had undergone extensive resection. After surgical resection of the tumor, reconstruction was done with fibular graft and fixed with recon plate.

On extra-oral examination, patient had a straight profile, facial asymmetry, significant deviation of mandible to the left side. Intraoral examination revealed left mandibular defect, missing teeth from 43-41, 31-38, generalised stains and cervical caries 44.

### Treatment Plan

Based on the clinical findings and present scenario, treatment plan was decided to provide the patient with guide flange prosthesis to aid in correction of the mandibular deviation, a provisional prosthesis



Fig 1: Pre-op OPG



Fig 2: Frontal view



Fig 3: Resected mandible



Fig 4: Fibular graft



Fig 5: Fibular graft stabilized using recon plate



Fig 6: Intra oral view



Fig 7: Rest seat preparation done (Master cast)

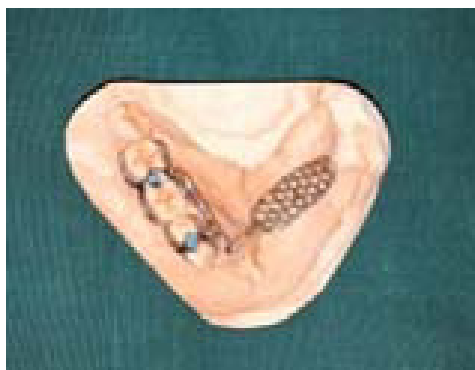


Fig 8: Cast partial frame work



Fig 9: Final prosthesis

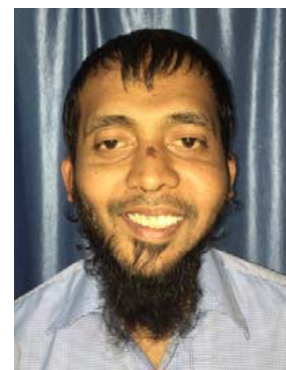


Fig 10: Post Insertion

# PROSTHETIC AND IMPLANT DENTISTRY

Official Publication of Indian Prosthodontic Society  
Kerala State Branch

followed by a definitive mandibular cast partial denture. The patient was advised for exercise as suggested by Beumer et al. & motivated for improving the oral hygiene status at every level of treatment.

## Prosthodontic Management

A preliminary impression was made for the upper and lower arches and a guide flange was fabricated using clear acrylic. Significant improvement was noticed in patient's occlusion after few months. After the correction, a provisional removable partial denture was fabricated so as to habituate the patient for a period of few weeks. Impression was made for upper and lower arches using alginate impression material with stock trays. Primary cast was obtained onto which a denture base and wax rim was fabricated for recording maxillo-mandibular relationship and simultaneously shade selection was done. Teeth were arranged accordingly in occlusion with the maxillary teeth and try in was carried out. The provisional removable partial denture was then processed and acrylicisation was completed. Patient's phonetics was improved significantly, but retention & stability was not fulfilled by the provisional prosthesis. Therefore definite mandibular cast partial denture prosthesis was further carried out.

The primary cast was surveyed and embrasure clasps were planned on 44-45 & 46-47. Occlusal rest seat preparation was done on the mesial aspect of 45,47 and on the distal aspect of 44,46. A custom impression tray was fabricated on the primary cast so as to make a secondary impression. The main objective of secondary impression was to obtain retention, support and stability in the final prosthesis. Perforations were made using a round bur in the fabricated custom tray and final impression was made using Putty wash impression technique with Type I (Heavy bodied consistency) and Type III (Light Body) Polyvinyl siloxane impression materials. The impression

was beaded and boxed (Plaster and pumice boxing) and poured in Type IV dental stone. The master cast was obtained and duplicated to make the refractory cast. Surveying was done and the metal framework was designed. Casting was carried out and a metal cast partial framework was checked in the patient's mouth. Appropriate buccal and labial fullness was checked during the jaw relation and teeth arrangement was done. After acrylicisation, completed mandibular cast partial denture was inserted, minor occlusal corrections were made and post insertion instructions were given. A remarkable improvement in aesthetics, phonetics and masticatory efficiency was observed. The patient was encouraged and motivated for improving the oral hygiene and regular follow up visits.

## Discussion

The need for early consultation with the maxillofacial prosthodontist has been emphasized in rehabilitation of mandibulectomy patients. Mandible is a single bone that creates peripheral boundaries for the floor of the oral cavity. Muscles of mastication are bilaterally attached to the mandible to generate a variety of complex mandibular moments useful in speech, swallowing, mastication etc. Loss of mandibular continuity results in deviation of remaining mandibular segment toward the resected side primarily because of the loss of tissue involved in the surgical resection. Greater the loss of tissue, greater will be the deviation of the mandible to the resected side, thus compromising the prognosis of the treatment.

## Conclusion

The success in rehabilitating a patient with hemimandibulectomy depends upon the nature and extent of the surgical defect, treatment plan, type of prosthesis, and patient co-operation. This article highlights rehabilitation of hemimandibulectomy patient who has undergone resection. Literature review advocates fabrication of guide flange

or palatal ramp prosthesis for such patients to prevent deviation of the mandible and to improve masticatory function and aesthetics. Disruption of the mandible has the potential to disrupt any of the mandibular functions; therefore form and function are the prime consideration while rehabilitating any mandibulectomy cases. The prognosis of the prosthesis in such defects depends primarily on the remaining structures available after surgery and how well a prosthodontist can make use of it to the best along with patient's co-operation.

## References

- 1 Beumer J, Curtis TA, Firtell DN, editors. Maxillofacial Rehabilitation: Prosthodontic and Surgical Considerations. St. Louis: Mosby; 1979. p. 150-6.
- 2 Liu Y, Wang H, You M, Yang Z, Miao J, Shimizutani K et al. Ossifying fibromas of the jaw bone: 20 cases. DentomaxillofacRadiol. 2010; 39:57-63.
- 3 Chalian VA, Drane JB, Standish SM. Maxillofacial Prosthetics. Baltimore: Williams and Wilkins Co.; 1972. p. 127.
- 4 Marathe AS, Kshirsagar PS. A systematic approach in rehabilitation of hemimandibulectomy: A case report. The Journal of the Indian Prosthodontic Society. 2016 Apr; 16(2):208.
- 5 Beumer J 3rd, Marunick MT, Esposito SJ. Maxillofacial Rehabilitation. 3rd ed. Chicago: Quintessence; 2011. p. 87-9, 118-20.
- 6 Koralakunte PR, Shammur SN, Iynalli RV, Shivmurthy S. Prosthetic management of hemimandibulectomy patient with guiding plane and twin occlusion prosthesis. Journal of natural science, biology, and medicine. 2015 Jul; 6(2):449.
- 7 Thomas D, Taylor. Clinical maxillofacial prosthetics. Quintessence Publishing Co, Inc 2000; 171
- 8 Kenneth L. Stewart, Kenneth D Rudd, William A. Kuebker. Clinical removable partial prosthodontics. 2nd edition. 2003: 381
- 9 Sahin N, Hekimoğlu C, Aslan Y. The fabrication of cast metal guidance flange prostheses for a patient with segmental mandibulectomy: A clinical report. J Prosthet Dent 2005; 93:217-20.
- 10 Prakash V. Prosthetic rehabilitation of edentulous mandibulectomy patient: A clinical report. Indian Journal of Dental Research. 2008 Jul 1; 19(3):257.
- 11 Swoope CC. Prosthetic management of resected edentulous mandibles. J Prosthet Dent 1969; 21: 197-202.
- 12 Schneider RL, Taylor TD. Mandibular resection guidance prostheses: A literature review. J Prosthet Dent 1986; 55:84-6.