



Unique Journal of Medical and Dental Sciences

Available online: www.ujconline.net

Case Report

PROSTHODONTIC APPROACH FOR TREATMENT OF HEMIMANDIBULECTOMY PATIENTS –A CASE REPORT

Rajul Vivek*

PhD Research Scholar, Faculty of Dental Sciences, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India

Received: 30-04-2016; Revised: 29-05-2016; Accepted: 26-06-2016

*Corresponding Author: **Dr. Rajul Vivek**

PhD Research Scholar, Faculty of Dental Sciences, Institute of Medical Sciences, Banaras Hindu University, Varanasi, 221005

ABSTRACT

The organization of carcinoma associated with the tongue, mandible, and adjacent structures becomes a difficult confront for a surgeon, radiologist to control the primary disease, and to the Prosthodontist for rehabilitation following treatment. Mandible is the most common site for intraoral tumors, which often requires the resection of large portions of the mandible. Disabilities resulting from such resections include impaired speech, difficulty in swallowing and deviation of mandible during functional movements and severe cosmetic disfigurement. Surgical reconstruction of mandibular discontinuity defects involves placing autogenous graft, allogeneic graft, xenograft, or alloplastic implants such as plastics, silicone, stainless steel, vitallium, and titanium. Management of discontinuity defects aims in restoration of mastication within the unique movement capabilities of the residual function in the mandible. This case report describes the prosthetic management of a patient following segmental mandibular resection with complete denture prosthesis with support of remaining natural teeth.

Keywords: Hemimandibulectomy, Deviation, Tooth supported overdenture, Surgical resection.

INTRODUCTION

Prosthetic Rehabilitation of patients with maxillofacial defects is a difficult task. The denture fabrication for such a patient becomes extremely difficult due to the unavailability of attached keratinized supporting tissues. In general, patients suffering extensive soft tissue loss resulting from tight wound closure, radiation therapy and those requiring a classical neck dissection exhibit the most severe mandibular deviation and dysfunction. Conversely patients with mandibular resections resulting in little soft tissue loss have less mandibular deviation. Neoplasms which are associated directly or indirectly with the mandible usually require surgical removal of the lesion and extensive resection of the bone^{1,2}.

The prosthodontic rehabilitation of mandibular defects is of great challenge. Prognosis for these patients has been improved with continuing improvement in surgical resection & reconstruction techniques, yet morbidity and incomplete rehabilitation persists.

That affects aesthetics, speech & function. In the discontinuity defect, the most common postoperative rehabilitative problem is the lack of occlusion secondary to mandibular deviation. Prosthodontist find challenging to provide reasonable & practical occlusal schemes for such patients with mandibular deviations.

CASE REPORT

A 59 year old male patient reported to the Department of Prosthodontics in Faculty of Dental Sciences, IMS, BHU, Varanasi with a chief complaint of difficulty in mastication since 2 year. The Medical history revealed that he was diagnosed carcinoma of alveolus with cervical nodes and had undergone extensive right side hemimandibulectomy with radical neck dissection 3 years back and received radiotherapy for the same. The patient's habit revealed that he was a tobacco chewer, 4-8 packets per day for 17 years. An extra oral examination showed asymmetrical face, and a convex profile. (Fig.1a, 1b) There was deviation of the mandible to the right side.

On intraoral examination it was found that the maxillary arch was partially edentulous. Tooth present in maxilla were 23. The remaining mandibular arch was also partially edentulous. The Teeth present in mandibular arch 32, 33. So it was decided used the remaining teeth as an over denture abutment. Retained root abutments can give better retention, support, and stability to prosthesis. Elective endodontics was carried out with teeth 23, 32, 33 and they were prepared in a dome-shaped contour and hemi spherically rounded in all dimensions with approximately 3–4 mm projecting just above the gingival. (Fig.2a, 2b) Post space was prepared Custom post patterns

were fabricated directly in the root canal .The fabrication of the post-coping patterns was completed in the laboratory. The copings with attachments were finished and polished and luted to the abutment teeth (Fig.3a, 3b).



Figure 1a: Frontal view



Figure 1b: lateral view



Figure 2a: Abutment for coping in maxillary arch



Figure 2b: Abutment for coping in mandibular arch



Figure 3a: Coping for maxillary arch



Figure 3b: Coping for mandibular arch

Maxillary Preliminary impressions were made with irreversible hydrocolloid and Mandibular Preliminary impressions were made with Impression compound using stock metal trays.(Fig.4a,4b) Casts were prepared and custom made impression trays were fabricated. The tray was border-molded with modeling plastic (DPI Tracing sticks. Dental products of India, Mumbai, India). Final impressions were made with light body vinyl polysiloxane (Aquaseal, Dentsply, Milford, DE).(Fig.5a,5b) This impression material was chosen to produce minimal tissue displacement. Impressions were poured with type III dental stone to obtain a master cast. Denture base was fabricated and wax occlusal rim was made. Maxillomandibular relation was recorded with wax interocclusal records. (Fig.6a, 6b) Teeth setting were done(Fig.7) and a wax set-up was tried in the mouth and was checked for esthetics, phonetics, occlusal vertical dimension and occlusion.(Fig.8) Final denture was finished and polished in conventional manner.(Fig9a,9b) Any interference in normal movements was corrected. Mastication was confined exclusively to the non-defect side. The patient was given post insertion instructions and was motivated to make efforts to learn to adapt to the new dentures.



Figure 4a: Primary impression maxillary arch



Figure 4b: Primary impression mandibular arch



Figure 5a: Final impression maxillary arch



Figure 5b: Final impression mandibular arch



Figure 6a: Maxillomandibular record



Figure 6b: Face bow transfer



Figure 7: Wax up and Teeth setting



Figure 8: Try in



Figure 9a: Final Prosthesis



Figure 9b: Final prosthesis right side view

DISCUSSION

This case report demonstrates the prosthetic executive of a patient who underwent partial mandibular resection. Since a considerable period of time had elapsed after the surgical procedure, guidance procedure was much more difficult for the patient. The earlier the mandibular guidance therapy is initiated in the course of treatment the more successful the patients definitive occlusal relationship is restored³.

The pull of the suprahyoid muscles on the residual mandibular fragment causes inferior displacement and rotation around the fulcrum of the remaining condyle thus giving the tendency to an anterior open bite⁴. Greater the loss of tissue, greater will be the deviation of the mandible to the resected side, thus compromising the prognosis of the treatment⁵. This article describes functional rehabilitation of hemimandibulectomy

patient who has undergone resection without reconstruction. The exercise as suggested by Beumer et al.⁶ was suggested to the patient.

In this procedure, following maximum opening, the patient manipulates the mandible by grasping the chin and moving the mandible away from the surgical side. These movements tend to loosen scar contracture, reduce trismus, and improve maxilla-mandibular relationships. The success in rehabilitating a patient with hemimandibulectomy depends upon the nature and extent of surgical defect, treatment plan, type of prosthesis, and patient co-operation.

CONCLUSION

The hemimandibulectomy patient is a difficult patient to manage because the prosthodontist is limited in their ability to provide a reasonable and practical occlusal scheme; these patients are best treated with uncomplicated prosthesis. Most patients undergoing hemi mandibulctomies are from less socioeconomic favoured population the recent and better treatment options such as implants, bone grafting are not feasible. Complete denture for these patients improved the esthetic appearance and the function without much complication in insertion and removal.

REFERENCES

1. Shafer WG, Hine MK, Levy BM, Tomich CE. A textbook of oral pathology, 4th ed., Philadelphia: WB Saunders. 1993, 86-229.
2. Adisman IK. Prosthesis service ability for acquired jaw defects. Dent Clin North Am. 1990; 34,265-84.
3. Beumer. J III, Curtis T.A, Marunick MT. Maxillofacial Rehabilitation. Prosthodontic and surgical consideration. St.Louis: Ishiyaku. Euro America. 1996, 184 – 188.
4. Taylor TD. Diagnostic considerations for prosthodontic rehabilitation of the mandibulectomy patient. In: Taylor TD, editor. Clinical Maxillofacial Prosthetics. Chicago: Quintessence Publishing; 2000. p. 155-70
5. Shetty P, Baliga M, Rodrigues S, Dixit S. Prosthetic management following mandibular resection: Clinical report. J Nepal Dent Asso2009;10:57-60
6. Beumer J 3rd, Marunick MT, Esposito SJ. Maxillofacial Rehabilitation. 3rd ed. Chicago: Quintessence; 2011. p. 87-9, 118-20

Source of support: Nil, Conflict of interest: None Declared