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PROSTHETIC MANAGEMENT OF EDENTULOUS MANDIBULECTOMY PATIENT USING TWIN OCCLUSION – A CASE REPORT

- ¹ Sirisha Attili
- ¹ Reader
- ² Hemchand Surapneni
- ³ Siva kiran babu Y
- ⁴ T S V Satyanarayana
- ² Reader
 ³ Senior Lecturer
 ⁴ Senior Lecturer
- ^{1,3,4} Department of Prosthodontics, St. joseph Dental College and Hospital, Eluru, Andhra pradesh, India.
 ² Department of Prosthodontics, Drs Sudha and Nageswara Rao Siddartha Institute Of Dental Sciences, Gannavaram,Andhra pradesh, India.

ABSTRACT: Numerous prosthetic methods are employed to minimize deviation and improve masticatory efficiency of hemimandibulectomy patient, who has undergone resection without reconstruction which include implant supported prosthesis, mandibular guide flange prosthesis and palatal based guidance restoration .this article describes an another method **twinned occlusion** which is simple and effective method for prosthetic management of mandibulectomy edentulous patient

KEYWORDS: Twin occlusion, Hemimandibulectomy.

INTRODUCTION

Prosthodontic rehabilitation of a patient with mandibulectomy will restore the balance and symmetry of face, loss of continuity leads to altered mandibular movement and deviation of residual fragment towards the surgical side^{1, 2}. Apart from deviation other dysfunction noted are difficulty in mastication, swallowing, speech, mandibular movements, and even respiration. Rehabilitation of mandibulectomy patients should always consider form and function.

In patients suffering with extensive soft tissue loss resulting in tight wound closure, and scar tissue contracture leads to the most severe mandibular deviation and dysfunction making the prosthetic prognosis quite guarded.

This article highlights prosthetic rehabilitation of an edentulous hemi mandibulectomy patient with a two rows of teeth in the maxillary denture on the unresected side.

Case Report

A 60 years old female patient reported to the department of prosthodontics with a chief complaint of difficulty in mastication since 6 months. Her past history revealed that she was diagnosed for squamous cell carcinoma on the right side of the mandible, for which she

has undergone extensive resection on the entire posterior region of the mandible 4 years back. An extra oral examination showed asymmetrical face and there is a deviation of the mandible to the right side that is to the resected side. On palpation the mandibular ridge was palpable till premolar. Orthopantamogram revealed absence of mandible on the right side, distal to the right first premolar. On intra oral examination it was found patient is completely edentulous on both the arches. There was more deviation of the mandible towards the resected side (**Fig.1**).

Clinical Procedure

In preliminary impressions, maximum extension and tissue coverage were recorded with irreversible hydrocolloid material (zelgan 2002, Dentsply, Gurgoan, India) using stock trays for both maxillary and mandibular arches and casts were poured with type III dental stone (KalabhaiPvt Ltd, New Delhi, India) (Fig.2). Border molding was performed and final impression was made with zinc oxide eugenol impression paste (DPI, Mumbai, India). Impressions were poured with type III dental stone to obtain a master cast (Fig.3 and Fig. 4). Contour of the polished surfaces of the denture especially for the lingual flanges on the resected and the unresected side are accurately recorded.

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Denture bases were fabricated and occlusal rims were made with following exceptions. Inmaxilla, the wax rim used to record the centric occlusion registration record is widened on the unresected side towards the palatal side in order to account for deviation of the mandible³.

Maxillary master cast was articulated using a facebow(Girbach) on a semi adjustable articulator (Girbach)(**Fig.5**). Altered proprioceptive mechanism, trismus, mandibular deviation, impaired motor and sensory function, muscle imbalance makes vertical dimension of

occlusion difficult to determine. Maxillomandibular relations were recorded. Phonetics, closest speaking space and patient comfort are used to assess vertical dimension of occlusion.

The nonanatomic posterior teeth were used due to the abnormal jaw relationships, and angular path of closure^{4, 5}. Position of the mandibular teeth is facilitated by identification of neutral zone. To compensate the deviation and retrusion of the mandible, the maxillary and mandibular anterior teeth are placed more palatally and labial respectively to their accustomed position with increase in vertical overlap to improve lip-tooth relation.





Fig.10. Post operative photograph.

A softened "ramp "of hard base plate wax is placed palatal to the maxillary teeth on the unresected side^{4, 6}. The patient was guided through various mandibular movements and a functional occlusion was generated in the wax. This functionally generated path recorded in the wax was used as an index to set another row of monoplane teeth lingual to the maxillary posterior teeth on the unresected side (**Fig.6**).

To obtain a more favorable occlusal relationship, the posterior teeth on the unresected side are placed buccal to the crest and on the surgical side are placed lingual to the crest of the ridge in the mandible Because of the deviation of the mandible, occlusal contacts on the resected side can be achieved only if the maxillary teeth are extended buccally from their accustomed position. A second row of teeth is developed in maxillary unresected side of 5-10 mm wide and provides a 3-4mm horizontal overlap with the mandibular posterior teeth. Mastication is confined to the nondefect side and bilateral occlusal contact serves as a stabilizing force⁷ (Fig.7).

In the trial insertion, the contour of the labial extension, placements of anterior teeth are checked. Occlusal contact of mandibular teeth is checked with maxillary second row of teeth. After that denture is polished and finished (**Fig. 8 and Fig. 9**).

Discussion

This present article highlights functional rehabilitation of hemimandibulectomy patient, who has undergone resection without reconstruction. The patient is completely edentulous on both the arches. Hence we have fabricated

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conventional removable complete denture prosthesis with two rows of teeth^{3, 8}. There is deviation of the mandible and the mandible is pulled towards the resected side. Two rows were arranged, the palatal row of teeth is to obtain a favorable occlusal relationship and the buccal row of teeth is for cheek support and esthetics. Mastication is confined exclusively to the nondefect side and bilateral occlusal contact serves as a stabilizing force.After insertion of the denture patient reported an increase in masticatory efficiency and happy with the treatment. (**Fig.10**) The patient was kept on 6 months recall.

CONCLUSION

This present article illustrates functional rehabilitation of hemimandibulectomy patient, who has undergone resection without reconstruction. When deviation is massive, providing twin occlusion rehabilitates patient functionally.Improved esthetics and mastication on the unresected side with a removable prosthesis was a reasonable objective.

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Corresponding Author

Dr. T.S.V. Satyanarayana Senior Lecturer St Joseph Dental College, Eluru Phone No: 9704022233. E-mail: satya0112t@gmail.com