

Combined Mandibular Guidance Therapy in the Management of a Hemimandibulectomy Patient

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This case history report describes two different devices, maxillary ramp prostheses (MRP) and mandibular guide flange prostheses (MGFP), prescribed for managing a hemimandibulectomy patient's deviated mandible. The patient was given muscle reprogramming exercises with coordinated use of both guidance prostheses for 2 months, leading to improvements in both postsurgical mandibular deviation and occlusal equilibration. A successful intercuspal position was eventually accomplished through the use of the combination therapy. MRP and MGFP can be a useful approach to avoid mandibular deviation and compromised function following a partial mandibular resection. *Int J Prosthodont* 2015;28:624–626. doi: 10.11607/ijp.4257

Patients who undergo a mandibular resection are prescribed guidance prostheses, most commonly a mandibular guide flange prosthesis (MGFP).¹ This is essentially a conventional mandibular prosthesis designed to achieve an appropriate mediolateral position of the mandible.¹

A maxillary ramp prosthesis (MRP), a provisional guidance plane with a palatal acrylic resin flange of sufficient size and shape used to guide the mandible to a correct occlusal position,² may also facilitate the fabrication of a definitive restoration.

This clinical report describes the use of both types of prostheses.

Case History Presentation

A 28-year-old Malay male patient was referred for prosthetic rehabilitation following a hemimandibulectomy of the left mandible due to squamous cell carcinoma. Extraoral examination showed facial asymmetry with mandibular deviation to the left side, while clinical examination revealed severe deviation of the mandible toward the resected side with lack of proper occlusal contact between the maxillary and mandibular teeth (Fig 1). The mandibular defect was classified as Cantor and Curtis Class IV.³ It was noted that the patient's mandible could be manually manipulated into a centric occlusion relationship.

Both prostheses were designed by employing survey line considerations and rest seat preparations (Fig 2). A meshwork was designed on the palatal framework for support of an acrylic resin guidance ramp. After the MRP framework try-in, pink wax was applied at the palatal area between metal meshwork and teeth as an occlusal indentation indicator for guidance of the deviated mandible (Fig 2).

The subsequently designed MGFP (Fig 2) included the guidance flange on the buccal aspect of the defect side. The waxup guide flange extended superiorly and diagonally on the buccal surface of the molars, allowing the normal horizontal and vertical overlap of the left maxillary teeth. A final prosthesis try-in with the wax guide flange and artificial teeth was done in the guided maximum intercuspal position and processed in the laboratory (Fig 3).

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Fig 1 (a) Extraoral view of patient. Pre-prosthetic intraoral views showing mandibular deviation toward resected side: (b) frontal view; (c) left lateral view; (d) right lateral view; and (e) mandibular occlusal view.



Fig 2 Chrome-cobalt framework design for (a) MRP and (b) MGFP. (c) Final cast frameworks for MRP. (d) Incorporation of waxing. (e) Framework for MGFP with buccal jig. (f) Artificial teeth setting with semiadjustable articulator.

Fig 3 Final prosthesis: (a) MRP and (b) MGFP.

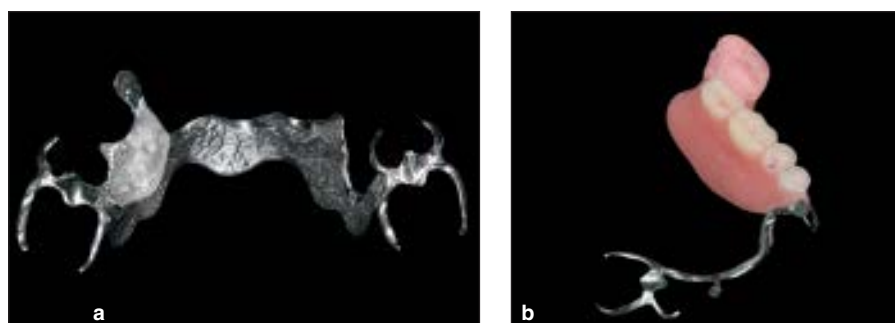




Fig 4 Final completed prosthesis. **(a)** Maxillary occlusal view. **(b)** Frontal view without occlusion. **(c)** Right lateral view with mandibular guidance. **(d)** Right lateral view with complete occlusion. **(e)** Left lateral view with complete occlusion. **(f)** Frontal view after complete occlusion at maximum intercuspal position.

Muscle reprogramming exercises with MRP and MGFP were performed for 2 months, when a follow-up appointment revealed that the mandible's deviation and occlusal relationship had improved (Fig 4).

Discussion

Different protocols have been proposed to minimize postsurgical mandibular deviation (eg, mandibular guidance therapy, intermaxillary fixation, resection guidance restorations).⁴ If the mandible can be manipulated comfortably into an acceptable occlusal position without flange interference, a cast metal guidance flange is regarded as appropriate.⁵

In the present selected case history report, some resistance was encountered in positioning the buccal flange of MGFP on the nondefect side because of occlusal interference with maxillary teeth due to limited distance between maxillary and mandibular teeth. This clinical challenge was addressed by using an MRP in relation to the nondefect side of the mandible, since the selected material can be periodically adjusted to obtain an improved relationship.⁵ An acrylic resin guiding flange on the buccal aspect of the defect side of the MGFP was also included to facilitate establishment of bilateral guidance.

The unique aspect of the present case was the use of combination prostheses in the maxilla and mandible. The benefit of this combination approach is

minimization of the deviation and the ability to find the proper occlusion of the mandible by neuromuscular reprogramming activity, which at the same time trained the patient to achieve proper occlusion by himself after therapy.

Conclusion

Prosthetic management of a mandibular hemisection using a combination of MRP and MGFP proved to be very beneficial for the described patient.

Acknowledgment

The authors reported no conflicts of interest related to this study.

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