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Rehabilitation Of A Patient With Fracture Mandible - A Case Report

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Abstract

Orientation of the occlusal plane in cases of fracture mandible and retruding the mandible to centric relation position, poses a challenge to the prosthodontist because of abnormal ridge relation, unfavourable ridge parallelism, unequal ridge resorption and muscle spasm. This case report outlines the difficulties encountered and management of the same in case of fracture mandible rehabilitated with miniplates.

Key Words

Fracture mandible; rehabilitation; occlusal plane

INTRODUCTION

The rationale of occlusal rehabilitation is to bring the mandible in centric relation and create a stable centric occlusion i.e., maximal intercuspation in the retruded contact position or in the retrusive range between retruded contact position and habitual occlusion. It is postulated that the coincidence of muscle balance and stable maximum tooth contacts is an acceptable physiologic position and that any deviation from it is potentially pathologic. Orientation of the occlusal plane in fracture mandible and retruding the mandible to the centric relation position poses a challenge to the prosthodontists because of abnormal ridge relation, unfavourable ride parallelism, unequal ridge resorption and muscle spasm. In this case report, we will discuss the difficulties encountered and the management of the same in case of fracture mandible treated with miniplates.

CASE REPORT

A 68-year-old male patient, robust build, reported to the outpatient department of prosthodontics, sardar patel post graduate institute of dental and medical sciences, lucknow with the chief complain of ill-fitting old dentures. He was not satisfied with the esthetics and also had difficulty in mastication as the lower denture was not stable on the ridge. History revealed trauma to the mandible 2 years back and the patient was treated for the same with miniplates. Patient was diabetic and had high blood pressure. Extraoral examination revealed deviation of chin to the left side, facial symmetry was present and no TMJ abnormality was detected. In radiographic examination, fractured mandible rehabilitated with miniplates was diagnosed (Fig.1). Intraoral examination revealed completely edentulous mandible and maxilla with severe resorption in the anterior region (Fig. 2 & Fig. 3). However mandibular posterior ridges were high due to miniplates. Maxillary and mandibular ridges were also not parallel. After surgery, implant assisted overdentures were suggested as the treatment of choice. However, the patient refused any further surgical intervention because the patient was diabetic and had fear of surgery. Therefore, it was decided that conventional complete dentures would be fabricated for this patient.

Procedure

A preliminary impression was taken with impression compound. After that study casts (Fig. 4) and custom trays were fabricated. Border moulding was done and final impression was taken in light body impression material (Fig. 5). Beading of the impression was done using a mix of pumice and plaster (Fig. 6) and then boxing was done (Fig. 7). Final cast was made (Fig. 8) and record bases were made with the sprinkle-on technique. The position of the mandibular record base and occlusal rim was evaluated and modified in the mouth until stability during functional movements was achieved.

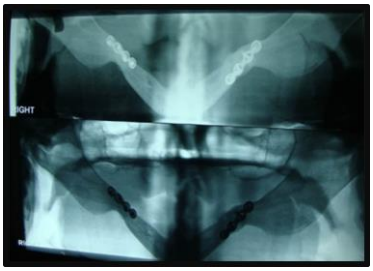
Fig. 1


Fig. 2


Fig. 3


Fig. 4


Fig. 5

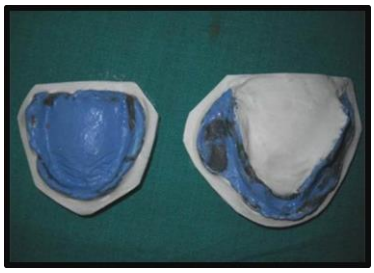
Fig. 6


Fig. 7


Fig. 8


Fig. 9


Fig. 10

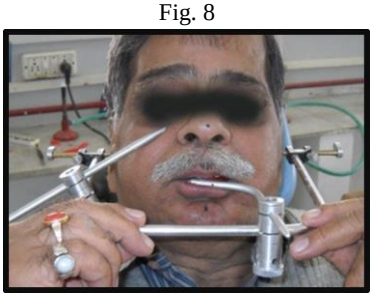
Fig. 11

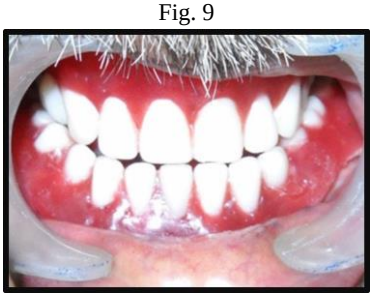
Fig. 12


Fig. 13


Fig. 14

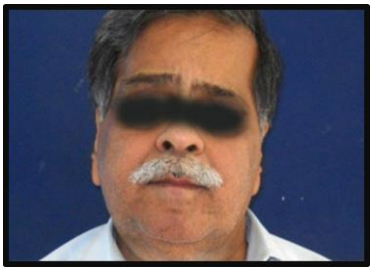
Fig. 15

After that registration of the tentative centric jaw position, face bow transfer, and articulation of the maxillary cast was done. Highly cross linked acrylic resin teeth were used. Preliminary teeth arrangement was done in this mounting and trial was done. Patient had great difficulty in retruding the mandible to centric relation, hence the trial denture were duplicated in self-cure PMMA (Fig. 9) and delivered to the patient (Fig. 10) with the objective of training the mandible to the actual centric relation position. The patient was kept under regular recall and observed for the training progress. After 3 weeks, the final centric relation record was made with wax rims and maxillary cast was mounted on the semi adjustable articulator with the help of facebow (Fig. 11). Anterior teeth setting and

try in done (Fig. 12). Premolars were arranged distal to the molars in the maxillary arch, whereas, in the mandibular arch only the 2nd premolar was arranged along with molars to achieve maximum intercuspation (Fig. 13). However no attempt was made to balance the occlusion. After tooth arrangement and festooning, the mandibular wax denture was evaluated again for denture stability during speech and eccentric jaw movement and then was processed with the conventional techniques (Fig. 14). Several post insertion denture evaluations and adjustments were performed. For the fractured mandible patient (Fig. 15) described in this report, properly fabricated conventional complete dentures provided comfort and sufficient function.

DISCUSSION

The goal of occlusal rehabilitation is to bring the mandible in centric relation and create a stable centric occlusion i.e., maximal intercuspation in the retruded contact position or in the retrusive range between retruded contact position and habitual occlusion.[1] It is postulated that the coincidence of muscle balance and stable maximum tooth contacts is an acceptable physiologic position[2] and that any deviation from it is potentially pathologic. The ultimate objective of the prosthodontics is to restore form, function and esthetics. The technique described here is for the construction of mandibular complete denture in the fracture mandible with unequal ridge resorption, unparallel ridges, and muscle spasm. The technique is especially useful in cases where retruding the mandible to the centric relation is difficult and dental implants are not possible.[3] The aim is to construct the denture in acceptable centric relation and muscle balance. The procedure described is less complex and does not result in substantial oral tissue change.[4] Occlusion change was minimal and could easily be adjusted in the mouth when the base was stable and jaw closure performance was correct. It may be necessary to accept an occlusion that is not bilaterally balanced in eccentric occluding positions. Therefore, the occlusion and base adaptation must be reevaluated frequently.[5]

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