

Clinical Report

Organized approach for the rehabilitation of a mutilated dentition using integration of fixed and removable prosthodontics

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In the field of mouth rehabilitation, there has been a tendency to both the oversimplification of the problems involved and overcomplication of them, which seems out of all proportions to the gain secured, if any. The mouth rehabilitation of a patient requires organized approach to involve various specialties of dentistry to regain the lost function, comfort and esthetics of the patient. Success requires diagnostic skill, perceptive treatment planning and diligent execution. The patient described in this clinical report has been diagnosed of mutilated dentition with reduced vertical dimension of occlusion. The rehabilitation was performed by successfully integrating various treatment concepts of fixed and removable prosthodontics.

Key words: Integration of fixed, mouth rehabilitation, mutilated dentition, removable prosthodontics

INTRODUCTION

Any dental procedure, be it the construction of fixed or removable dentures or the restoration of carious teeth with amalgam, may be referred to as a process of mouth rehabilitation.^[1] It implies the employment of all the diagnostic, therapeutic and restorative procedures at our command for the treatment and prevention of dental diseases.^[2]

Mouth rehabilitation has been definitely come of age. It is no longer condemned as the pretentious young upstart inevitably doomed to failure and ruin.^[3] Apprehensions involved in the reconstruction of debilitated dentition are heightened by widely divergent views concerning the appropriate procedure for successful treatment. Most philosophies and associated techniques for full mouth rehabilitation share similar characteristics: (1) they are based on the author's specific philosophy of occlusion and (2) they appear highly individualistic and often precisely dictate one inflexible sequence for successful treatment.^[4]

This article describes the rehabilitation of a 62-year-old patient with the mutilated dentition by using the integration of fixed and removable prosthodontics. The integration of fixed and removable prosthodontics to restore the dentition of a partially edentulous patient poses a challenge and an opportunity. Success requires diagnostic skill, perceptive treatment planning and diligent execution.^[5]

CASE REPORT

A 62-year-old partially edentulous patient with satisfactory general health reported to the department of prosthodontics, Government Dental College, Bangalore. The patient complained of several missing teeth, severe attrition of teeth present, reduced chewing efficiency, temporomandibular joint (TMJ) pain and discomfort due to overclosure.

The dental history of the patient revealed that he is partially edentulous for the past 14 years and lost his teeth gradually over a period of time. He was rehabilitated in past with the acrylic plate partial dentures for both of his upper and lower arches. The maxillary left anterior teeth were already endodontically treated because of pain and dentin sensitivity.

The clinical examination revealed [Figure 1a] several missing teeth in both maxillary and mandibular arches with no opposing occlusal stops bilaterally, which caused reduced the vertical dimension of occlusion (VDO). There was severe attrition and abrasion of the teeth present. The lack of occlusal stops bilaterally resulted in the supraeruption of right maxillary first and second molars, left mandibular first and second molars and right mandibular first premolar. The left mandibular lateral incisor had grade III mobility and was indicated for extraction.

The periodontal examination revealed generalized bleeding on probing and grade II to grade III gingival recession in majority of teeth present. The edentulous

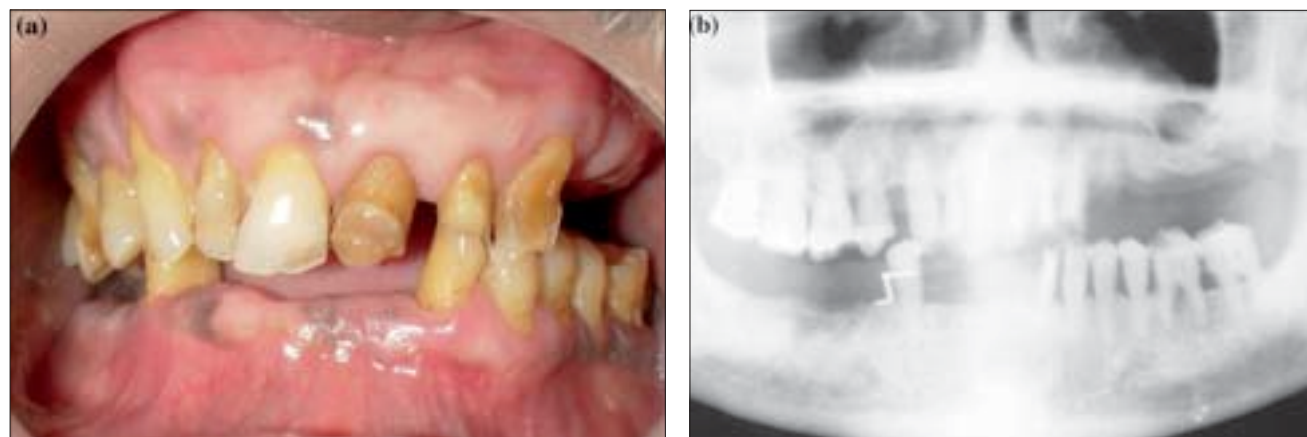


Figure 1: (a) Pre-treatment intraoral photograph. (b) Orthopantogram revealing the periodontal condition of the patient



Figure 2: Removable provisional restoration



Figure 4: (a) Maxillary RPD framework trial. (b) Mandibular RPD framework trial



Figure 3: Preparation of wax patterns with ledges on the palatal surface

ridges were of medium size and with firm and resilient mucosal covering.

The radiographic examination included full mouth intraoral periapical radiographs and orthopantogram [Figure 1b] to evaluate the periodontal health. The bone resorption in the interdental and edentulous



Figure 5: Post-treatment intraoral photograph

region was found to be minimal to moderate. The diagnostic casts were made and mounted on a semi-adjustable articulator using face bow transfer and centric relation record.

On the basis of clinical and radiological examination, a diagnosis of mutilated dentition with reduced VDO was made. The preliminary treatment phase was started as follows: extraction of the mobile tooth, thorough oral prophylaxis and intentional root canal treatment of all the supraerupted teeth as they need to be crowned to develop proper occlusal plane.

A diagnostic wax up was completed on the mounted casts to establish the desired aesthetics, occlusal plane, tooth contour and positioning for final restoration. The diagnostic wax-up was acrylized to fabricate the removable provisional restoration [Figure 2]. Based on the clinical findings, a 4 mm increase of the vertical dimension was carried out. The provisional restoration was provided for 6 weeks. The patient was observed periodically, while appropriate adjustments were carried out. After 6 weeks, the patient reported his satisfaction with regard to appearance, function and improved masticatory efficiency. Pain in the TMJ also subsided.

The definitive treatment plan was formulated in 2 phases: phase I - fixed prosthodontics and phase II - removable prosthodontics.

Phase I of treatment started with tooth preparation in relation to all the maxillary left anteriors and mandibular left canine to receive metal ceramic crowns. The mandibular left and maxillary right first and second molars were prepared to receive full metal crowns. The lone standing supraerupted mandibular right first premolar is reduced to cervical level to receive a metal coping to act as partial over denture abutment, since there is reduced interocclusal space in spite of increased VDO. The final impressions of both the arches were made with putty-wash technique using addition silicones.

The casts were prepared in die stone. The wax patterns were fabricated on the dies. The occlusal and cingulum rest seats were carved out in wax patterns of the crowns. To receive the reciprocal arm of the removable partial denture (RPD) framework the ledges [Figure 3] were prepared in the wax patterns on the palatal surface of right maxillary molars and lingual surfaces of mandibular molars. After the laboratory procedures the crowns and the metal coping in relation to mandibular right first premolar were cemented to their respective teeth using Fuji Type-I glass ionomer cement.

Phase II (removable prosthodontics treatment) involves the fabrication of cast partial dentures for both the arches. The mouth preparations were completed in fixed treatment phase by planning the single path of insertion by surveying the wax patterns and carve

them to develop desired undercuts, ledges and parallel guide planes.

The rest seats were prepared in relation to maxillary right canine and premolar and mandibular left first premolar. The final impressions of both the arches were made with putty wash technique using addition silicone impression material. The casts were prepared in die stone. The maxillary and mandibular RPD metal frameworks were fabricated. The finished metal frameworks were tried in the patient's mouth [Figure 4a, b].

The fit of the cast partial denture frameworks were evaluated. Centric relation was recorded at the predetermined VDO. After the try-in of the waxed up cast partial dentures, they were processed in conventional manner using heat polymerized acrylic resin. Finished RPDs were inserted [Figure 5], and the patient was instructed for proper homecare and oral hygiene measures.

The patient was followed up upto 2 years after 24 h, one week and every second week for next 6 months. After a week following insertion of the prostheses, examination revealed mild overextension of the denture border in the right lingual sulcus. The appropriate adjustment of the denture was carried out.

DISCUSSION

The procedure explained in this clinical report is an organized way to rehabilitate a mutilated dentition. The successful integration of fixed and removable prosthodontics has resulted in accurately fitting, esthetic and functionally efficient prostheses. The other treatment option that was discussed with the patient was implants and implant supported prostheses. The economical constraints of the patient have restrained us to the present treatment option.

The prosthetic rehabilitation of geriatric patients with mutilated dentition and loss of VDO can lead to potential problems because of unfavorable neuromuscular coordination of the stomatognathic system. The patient described in this clinical report had fair neuromuscular control. The principal objective was to maintain the dental structures intact and to restore lost comfort, function and esthetics, which was achieved successfully in the present case.

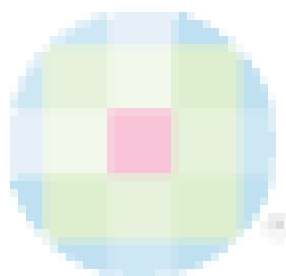
Periodic follow ups and meticulous prostheses maintenance by the patient will hold the key for the ultimate success of these types of rehabilitations.

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