

Prosthetic Rehabilitation of a Partially Edentulous Mandibular Arch with a Cast Partial Denture and a Completely Edentulous Maxillary Arch with a Removable Complete Denture: A Case Report.

Sonam Agrawal¹, Neelam Rahul², Sonia Sharma³, Vaishnavi Gadbail⁴, Shruti Thakre⁵, Gayatri Deshmukh⁶

Dr. Sonam Agrawal,

Associate Professor, Department of Prosthodontics, Swargiya Dadasaheb Kalmegh Smruti Dental college and Hospital, Nagpur.

Dr. Neelam Vilas Rahul,

Associate Professor, Department of Endodontics, V.Y.W.S. Dental college and Hospital, Amravati.

Dr. Sonia Sharma,

Associate Professor, Department of Orthodontics, Triveni Dental Collenge and Hospital and Research Center, Bilaspur.

Dr. Vaishnavi Gadbail⁴, Dr. Shruti Thakre⁵, Dr. Gayatri Deshmukh⁶,

Assistant Professor, Department of Endodontics, V.Y.W.S Dental college and Hospital, Amravati.

Abstract

This case report describes the prosthetic rehabilitation of partially edentulous mandibular arch and a completely edentulous maxillary arch. The treatment involved the fabrication of a cast partial denture for the mandibular arch and a removable complete denture for the maxillary arch. The patient reported significant improvements in chewing efficiency, speech, and overall satisfaction with the aesthetic outcome. Proper patient education and follow-up care were emphasized to ensure the long-term success of the treatment.

Keywords: Cast Partial Denture (CPD), Complete Denture.

INTRODUCTION

Edentulism, the loss of natural teeth, can significantly impact a patient's quality of life, affecting their ability to chew, speak, and maintain proper nutrition. Successful prosthetic rehabilitation not only requires careful attention and meticulous treatment planning but also requires rehabilitating adequate aesthetics and function [1]. Prosthetic rehabilitation aims to restore these functions and improve the patient's overall well-being. Rehabilitation of partially edentulous arch is a challenge, especially when it is a distal extension situation classified under Kennedy's class I and class II situations [2]. Cast partial dentures are made retentive by the use of direct and indirect retainers and precision attachment components [3]. This case report details the prosthetic rehabilitation of a 65-year-old male patient with a partially edentulous mandibular arch and a completely edentulous maxillary arch. The treatment involved the fabrication of a cast partial denture for the mandibular arch and a removable complete denture for the maxillary arch.

Case Presentation

A 65 years old patient reported to Department of Prosthodontics Crown and Bridge and Implantology with chief complaint of difficulty in chewing and speech due to missing teeth in maxillary and mandibular arches. Intraoral examination revealed completely edentulous maxillary arch and partially edentulous mandibular arch with bilaterally missing first and second mandibular molars (Kennedy's Class I) and undergone root canal treatment with 31,32,33,41,42 and 43. (Fig.1)

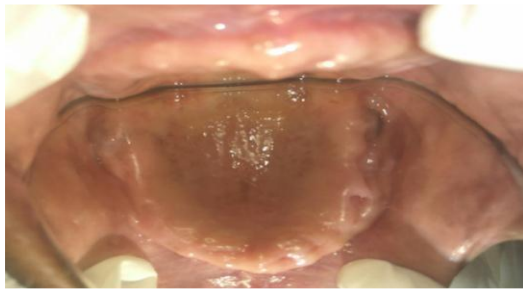


Fig.1 Preoperative view Intraorally

Diagnostic cast was made and Tentative centric Jaw relation was recorded with interridge distance was measured. Occlusal plane correction was done using Brodrick's Occlusal Plane analyser. Followed by tooth preparation and gingival retraction of 31,32,33,41,42,43, followed by impression. (Fig. 2).



Fig. 2 tooth preparation with gingival retraction

Metal coping trial was done to check overall fit of prosthesis (Fig. 3) followed by bisque trial (Fig. 4). Final Porcelain fused to metal crown prosthesis was luted with Glass ionomer cement. Final prosthesis having canine rest. (Fig.5)



Fig.3 Metal coping trial



Fig.4 Bisque Trial



Fig. 5 Post cementation of PFM crowns with canine rest

After planning and surveying canine rests were fabricated on PFM crowns and occlusal rests were prepared on first and second premolars bilaterally. Functional impression was made followed by master cast and fabrication of metal framework and trial of the framework was done (Fig. 6, Fig.7). Framework was checked for accuracy and fit and for stability and retention.



Fig.6 Master Cast



Fig.7 Metal framework trial

Facebow transfer was done on Hanau's Wide Vue semi-adjustable articulator and centric relation was recorded (Fig.8). Arrangement of teeth for complete denture in maxilla and mandibular cast partial denture was done (fig.9). Try in procedure was done and sent for acrylization of the maxillary complete denture and mandibular cast partial denture. Finished and Polished denture and cast partial denture was checked in patient's mouth for the occlusion, stability and retention of the prosthesis (Fig.10,11,12,13). Recall appointment was scheduled after 24 hours to evaluate any post insertion complication.

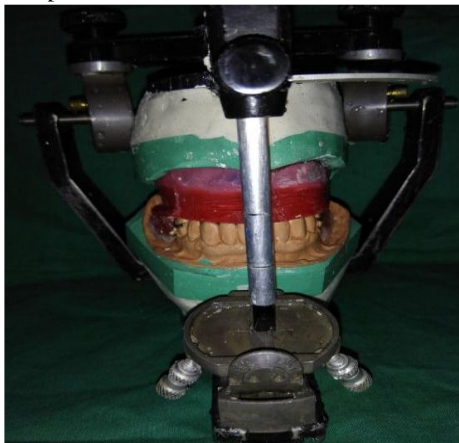


Fig. 8 Hanau Wide Vue articulator



Fig.9 Teeth Arrangement



Fig. 10 Polished Prosthesis



Fig.11 Occlusal view of Complete Denture



Fig.12 Occlusal view of Cast Partial Denture



Fig.13 Post insertion view

DISCUSSION

The most frequently seen combination denture is a mandibular class I or II partial denture opposing a maxillary complete denture [4]. The prosthetic rehabilitation of the partially edentulous mandibular arch with a cast partial denture and the completely edentulous maxillary arch with a removable complete denture resulted in significant improvements in the patient's functional and aesthetic outcomes. The cast partial denture provided a stable and functional replacement for the missing mandibular teeth, while the removable complete denture restored the maxillary arch, enhancing the patient's chewing efficiency and speech. The use of a cobalt-chromium metal framework for the cast partial denture ensured durability and stability. The removable complete denture was fabricated using heat-cured acrylic resin, which offered a comfortable and aesthetic solution for the maxillary arch. Also, the altered cast impression technique is most commonly employed in the mandibular distal extension cases. It was first described by Applegate. It aids fulfilling the necessities of linking the anatomic form of the teeth to the functional form of the residual ridge [5]. Leupold RJ and Kratochvil FJ and Holmes JB in their articles regarding the altered cast impression technique have mentioned that utilising the former technique results in minimum movement of the base at the time of placement and displays the most favourable ridge to denture base relationship [6,7]. Proper patient education and follow-up care were crucial for the long-term success of the treatment. The patient was instructed on maintaining good oral hygiene, including brushing and flossing the remaining natural teeth and cleaning the dentures daily. Regular follow-up appointments allowed for monitoring the fit and function of the dentures and making any necessary adjustments.

CONCLUSION

The prosthetic rehabilitation of the partially edentulous mandibular arch with a cast partial denture and the completely edentulous mandibular arch with a removable complete denture resulted in improved functional and aesthetic outcomes for the patient. Proper patient education and follow-up care are essential for the long-term success of the treatment.

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