

# Functional rehabilitation of edentulous mandible with cast removable partial denture: A Case report

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**Abstract-** The situation of multiple missing teeth always needs careful dealing and meticulous treatment planning. Successful treatment can be brought about with a combination of contemporary and conventional treatment planning. Implant-assisted prosthodontics has become a contemporary choice for the replacement of the natural teeth, but conventional methods of fabrication of the removable partial denture continues to be an essential prosthetic consideration in many oral reconstructions. In this case report the patient's esthetic and functional requirements were fulfilled with a cast partial denture.

**Index Terms-** removable partial denture: cast partial denture

## I. INTRODUCTION

Removable partial denture is that component of Prosthodontics, which denotes the branch of dentistry pertaining to the restoration and maintenance of oral functions, comfort, appearance, and health of the patient by the restoration of natural teeth and/or the replacement of missing teeth and craniofacial tissues with artificial substitutes. Even in countries with highly developed dental care systems these are still widely in use.<sup>1</sup>

In current practices for the management of partial tooth loss, various types of prostheses are considered and the prostheses which best meets the demands of the patient while being in harmony with the clinical condition is selected. All

types of prosthesis should meet the basic objectives of prosthodontic treatment, which includes: (1) the elimination of oral disease to the greatest extent possible; (2) the preservation of the health and relationships of the teeth and the health of oral and paraoral structures, which will enhance the removable partial denture design; and (3) the restoration of oral functions that are comfortable, esthetically pleasing, and do not interfere with the patient's speech<sup>2</sup>.

The removal partial denture has several advantages such as appearance, speech mastication, preventing the undesirable movement of the tooth, maintaining the health of the masticatory system and it also improves the distribution of the occlusal loads.

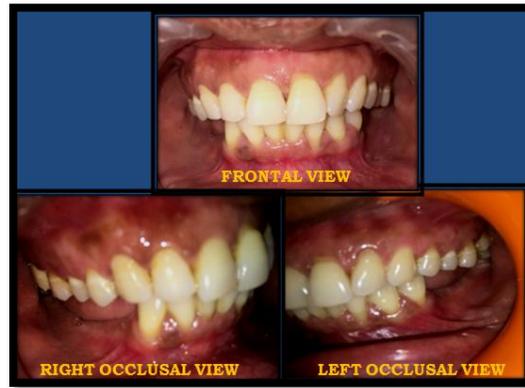
The desire to enhance chewing ability is the second most frequent reason given for seeking dental treatment, the first being esthetics.<sup>3</sup>

## II. CASE REPORT

A 37-year-old female reported with the chief complaint difficulty in mastication due to missing teeth. On clinical examination teeth present in mandibular arch were 31,32,33,34,38,41,42,43,48, in maxillary arch it was dental prosthesis wrt 17 with good periodontal condition the both the arches. The patient was partially edentulous wrt 35 36 37 44 45 46 47. In the radiographic evaluation, adequate bone support was found around all the teeth present.



**Pre-op intraoral pictures**



After the clinical examination the diagnostic casts were studied and different treatment plans, ranging from conventional removable partial dentures to implants were discussed to rehabilitate and restore function, mastication and speech. The option of implants was ruled out because of the economic reasons. The crown height and periodontal health of the abutments teeth being good enough for a removable partial denture. Treatment plan included root canal treatment of the posterior abutment teeth along with the metal crown with incorporated rest seat.

### Surveying of the primary cast

Definitive impressions were made with an addition silicone (reprosil soft putty/ regular set and reprosil LV, Dentsply, caulk, Germany.) working casts were generated from diestone type IV (kalrock, kalabhai karson Pvt Ltd., Mumbai) for the fabrication of the metal crown irt to 38,48. The crowns have been waxed to full contour and milled in wax for guiding plane surface.

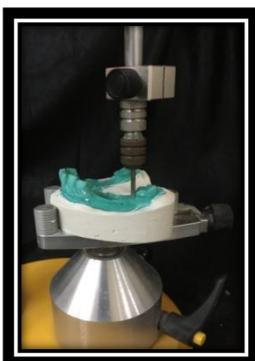


**Post root canal OPG.**

After the root canal procedure Tooth preparation was done 38,48 to receive the metal prosthesis with rest seat incorporation to evaluate the height of contour the surveying of the primary cast was done.



The mouth preparation were done in which the preparation of the rest seat on the mesial abutments were done and the final impression were made with the addition silicon material and the master cast was fabricated. The master cast was then duplicated for the wax pattern fabrication in investment material.





Impression technique: Dual stage  
Putty wash technique with  
elastomeric impression material



Surveying of the  
master cast



Metal framework



Metal framework  
trial



**Facebow transfer**



**Final prosthesis**

After the final check up, routine checkup were performed in every 3 months for 1 year for the health of the abutments. The final result satisfied the patient who produced a stable occlusion with good mastication and aesthetics.



### III. DISCUSSION:

There are several treatment options for rehabilitation of partial edentulism, including the use of conventional or implant retained fixed prosthesis. Newer technologies like CAD CAM, precision milled attachments, impression materials have played a vital role in improving the quality of RPD.<sup>4</sup>

Dr. Herman Chayes first reported the invention of attachment in the early 20th century. Removable partial denture with semiprecision or precision attachments for retention and support are also the available option for removable partial denture,<sup>5</sup> but these are most beneficial in the distal extension cases.

The stress on the abutment due to the difference in nature and behavior of the tissues supporting RPD is critical for long term success of prosthesis. The stress control on this abutment is achieved through dual impression technique, broad coverage and stable denture base, rigid design, splinting of dentition, proper selection of attachments and clasp design.

An appropriate attachment is to be selected for each individual case depending on many factors like periodontal condition, amount of space available, quality of bone support, location of abutment, angulation of the roots to occlusal plane and patient desire. Short clinical crowns prove to be the foremost contraindication to use of attachments in the construction of RPD'S.

The impact strength, compressive strength of the alloys with acrylic resins are better than the non metallic acrylic denture. Krall and others were investigate to state that the presence of removable partial denture is an important for nutritional intake and the replacement of missing teeth could help people maintain a healthy diet.

### IV. CONCLUSION:

The restoration of the partially edentulous conditions exhibits a challenging decision making in planning the treatment without compromising the patient's needs. The technique

followed in the treatment of this patient is a simple yet effective for providing an optimum treatment for an individual.

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