

# THE FORGOTTEN ART OF REHABILITATING PARTIALLY EDENTULOUS ARCHES: CASE REPORT

Cheena Sethi<sup>1</sup>, Puneet Mutneja<sup>2</sup>, Rajani A.Dable<sup>3</sup>, Nirmal Raj<sup>4</sup>, Rayapati Srinivasa Rao<sup>5</sup>  
 Postgraduate<sup>1</sup>, Reader<sup>2</sup>, Head & Professor<sup>3</sup>, Professor<sup>4,5</sup>

1-5-Department of Prosthodontics and Crown & Bridge, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, UttarPradesh, India

## Abstract:

Removable Partial Dentures in the form of a Cast Partial Denture has become a viable treatment modality for the patients where fixed treatment is impossible due to patients intraoral condition and also due to various associated systemic factors and in cases of long edentulous span where only implant supported prosthesis is the only option. This case report describes the rehabilitation of partially edentulous patient with distal extension using a Cast Partial Denture (CPD) as a viable treatment modality when compared to conventional Removable Partial Denture (RPD).

**Key Words:** Cast partial denture, Removable partial denture, Cast circumferential clasp

## Introduction

Restoration of partially edentulous arch is a challenging task to the clinician as the clinical situation and the patients expectation may be totally different

.Partially edentulous arch with a distal extension is more difficult to rehabilitate because there is no distal abutment present so we cannot go for fixed prosthesis and hence a fixed partial denture cannot be considered.<sup>1</sup> An implant supported prosthesis can be planned depending on patients economical condition, systemic factors, and quantity of bone. If an implant supported prosthesis is ruled out then the best treatment option preferred that is a Cast Partial Denture. Cast Partial Denture is defined as a removable partial denture consisting of a cast metal framework that contains artificial teeth sets in acrylic resin. It is indicated in partially edentulous patients with no tooth present behind the edentulous space, trauma to the jaw bone, good periodontal health.<sup>2</sup> Contraindicated in cases of poor oral hygiene, where remaining teeth not able to retain removable prosthesis, periodontally compromised teeth.

## Case Report

A 62 year old male patient reported to the Department of Prosthodontics and Crown and Bridge and Teerthanker Mahaveer Dental College & Research Centre, Moradabad with missing teeth in upper and lower jaw. After a detailed history an intraoral examination revealed teeth present in the maxillary arch 11,12,13,14,15,22,23,24,25 and in the mandibular arch were 33,34.The patient was explained all the various modalities of treatment and it was finally decided that the maxillary arch be restored by cast partial denture and mandibular arch by cusil denture. The patient did not opt for implant supported denture due to financial constraints.

## Treatment Procedure

Firstly, Primary impressions were made of both the maxillary and mandibular arches using irreversible hydrocolloid (Algitec, HeraeusKulzer,South Bend,IN) Diagnosticcasts were made using Type III gypsum product (Dentstone)(Figure-2) Surveying

was done on the maxillary cast to locate for soft and hard tissue undercuts and to create rest seats.

Cingulum rest were prepared on 13,23 and mesio-occlusal rest on 15,25. A bar retained clasp was the direct retainer of choice on the right quadrant and a reverse circlet clasp was planned for the left quadrant. Complete Palate was the major connector of choice as more support could be derived from the palate. After the completion of mouth preparation, dual impression for maxillary and mandibular arches were made using polyvinylsiloxane impression material(Figure-4). The impression were disinfected and poured with Type III Gypsum product (Dentstone). The master cast was blocked accordingly, i.e shaped block-out for the clasp, arbitrary block out in the anterior region and paralleling block out at interdental areas. Beading was also done for close adaptation of denture base to prevent food lodgement. Wax spacer was adapted on the edentulous area bilaterally and tissue stops are created to provide space for acrylic to flow below the denture base. Then the master cast was duplicated using reversible hydrocolloid in a duplicating flask. A phosphate bonded investment material was poured to obtain a refractory cast(Figure-5). Pre-formed wax patterns were adapted on the refractory cast, sprues were attached(Figure-6) and casting was done to obtain the metal framework. Framework was then finished and polished. Try-in of the framework was done in patient's mouth to check for complete seating and also for the stability(Figure-8). Maxillomandibular relation was recorded and teeth were set. Try-in was Laboratory steps like, Flasking, dewaxing(Figure-9) and packing was carried out. The denture was removed from the dental flask, trimmed, finished and polished. Insertion of maxillary cast partial denture and cusil denture was done in patient's mouth. Post insertion



FIGURE 1: PRE-OPERATIVE VIEW

instruction was given.



FIGURE 2: DIAGNOSTIC CAST



FIGURE 3: DESIGNING OF THE COMPONENTS



FIGURE- 4: FINAL IMPRESSION



FIGURE- 5: DUPLICATION OF REFRACTORY CAST FROM MASTER CAST



FIGURE- 6: DESIGNING OF THE FRAMEWORK WITH SPRUES ATTACHED TO IT



FIGURE 7: CAST PARTIAL FRAMEWORK TRY-IN



FIGURE-8: TEETH ARRANGEMENT



FIGURE-9: FLASKING AND DEWAXING



FIGURE-10: POST-TREATMENT VIEW

## Discussion-

There are various treatment options available for the rehabilitation of partial edentulous condition. Depending upon patient's intra-oral condition, diagnostic factors, patient's perspective optimum treatment plan should be selected for the patient.<sup>3</sup> The primary reason which was expressed by the patient is cosmetics and esthetics whereas improved mastication being the second most common reason for prosthodontic treatment. The two principal designs for distal extension partial denture are Rest, Proximal Plate, I Bar(RPI) concept and circumferential design they did not differ in terms of success rate as well as maintenance.<sup>4</sup> Care should be taken during the designing of framework, which is crucial for esthetic reasons. For RPD, clasps are used as direct retainers, the clasp location, type of clasp, material of clasp and their number plays a major role.<sup>5</sup> Lots of advancement has witnessed to attain a comprehensive treatment such as the use of Computer aided design and Computer assisted milling(CAD-CAM), newer impression materials, improved techniques. Alloy weight can also be a contributing factor. As base metal alloys has higher weight compared to titanium alloys. All these factors should be keep in mind during planning of partially edentulous arches.

## Conclusion

In this case report, Removable cast partial denture was the treatment of choice. The aim of restoring the function, phonetics and esthetics were satisfied. The success of treatment would depend upon patients ability to maintain good oral hygiene and maintenance of the denture with regular follow-up.

## References

1. Neeraja Turagam , Durga Prasad Mudrakola , Ravi Shankarbabu Yelamanchi, Mandhava deepthi and Manikandan Natarajan. Esthetic Clasp Cast Partial Denture J Int Soc Prev Community Dent 2019 Jan-Feb;9(1):94- 98.
2. Beaumont AJ., Jr An overview of esthetics with removable partial dentures. Quintessence Int. 2002;33:747-55.
3. Mc Cracken's Removable partial denture prosthodontics 12<sup>th</sup> edition.
4. Sato Y, Hosokawa R. Proximal Plate in conventional circumferential cast clasp retention. J Prosthet Dent.2000;83:319-22.
5. Harsh Patel, Kavan Patel, Shruti Thummer, Ruchita K.Patel. Use of precision attachment and cast partial denture for long span partially edentulous mouth-A Case Report. International Journal of Applied Dental Sciences 2014;1(1): 22-25.