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### RESEARCH ARTICLE

#### CAST PARTIAL DENTURE FOR REHABILITATION OF PARTIAL EDENTULISM WITH DISTAL EXTENSION: A CASE REPORT

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#### Abstract

Loss of teeth has a negative impact on patient's oral health and mental well being. While treating a patient with partial edentulism the restorative dentist should not ignore the patient's concern and thereby the planned treatment modality should best suit the patient. In this clinical report a patient with partial edentulism (Kennedy class II mod 2) was rehabilitated with cast partial denture over acrylic partial denture and other fixed dental treatment as it was considered to be the most viable treatment option.

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#### Introduction:-

With the advancement of dental implants combined with the success and comfort of fixed restorations, generally removable partial denture may not be the first line of treatment in case of partial edentulism. However in certain clinical situations removable partial denture can be the only amicable solution promoting oral health, preserving remaining oral structures and restoration of oral function with aesthetically pleasing result. Rehabilitation in distal extension situation like Kennedy's class I and class II situation is challenging.<sup>1</sup> Fixed partial denture is generally contraindicated in these situations due to absence of distal abutment. Implant therapy is also not feasible in case of systemic disease and bone loss. Cast partial denture in distal extension situations is always a better alternative than commonly used acrylic denture or flippers because of its accuracy, durability, resistance to distortion and inherent cleanliness.<sup>2</sup> Before deciding the treatment plan amongst the array of techniques involved in prosthetic rehabilitation the present anatomic relationship of tissues and state of remaining tissues must be considered. The successful denture complements the remaining natural teeth, cooperates with them in function and extends their useful life.<sup>3</sup> After thorough evaluation of bony support of the abutment teeth and the health of the supporting tissue, in this case report, a partially edentulous patient with (Kennedy's class II mod 2) was restored with cast partial denture.

#### Case Report

A 62 year old male patient came to the department with chief complain of difficulty in eating for past 2 years due to several missing teeth. The patient had no significant medical history and found to be having philosophical attitude. Intraoral examinations revealed missing 26,34,36,37,44,45,46 and abutment teeth in healthy condition. Diagnostic impressions were made with irreversible hydrocolloid impression material (Algitec). Surveying was done. Acrylic partial denture was planned for maxillary arch and cast partial denture was planned for mandibular arch. However an implant supported prosthesis was ruled out as patient didn't opt for any surgical procedure and due to the cost involved.

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**Pre-prosthetic phase**

Before starting prosthetic treatment patient was motivated and educated properly. Athrough oral prophylaxis was carried out.

**Prosthetic phase**

Mouth preparations were done for mandibular teeth. Guiding planes were prepared on the abutment teeth. Rest seat preparations were done in 33,35,43,47. After tooth preparation impression was taken with elastomeric impression material(Reprosil,Dentsply) and master cast was poured. Agar hydrocolloid was used for duplicating the cast with refractory material(Bego,Wirowest). On this refractory cast desired wax pattern was fabricated. . The wax pattern was casted with co-cralloy. Metal framework try in was done in patient's mouth to check fit and accuracy. Teeth arrangement was done and again try in was carried out in patient's mouth. Trial denture was sent for acrylisation and the finished denture was delivered to the patient. Patient was educated for proper maintenance of oral hygiene and prosthesis. Acrylic denture for maxillary arch was fabricated in conventional method. Hewas found to be quite satisfied with the new dentures.

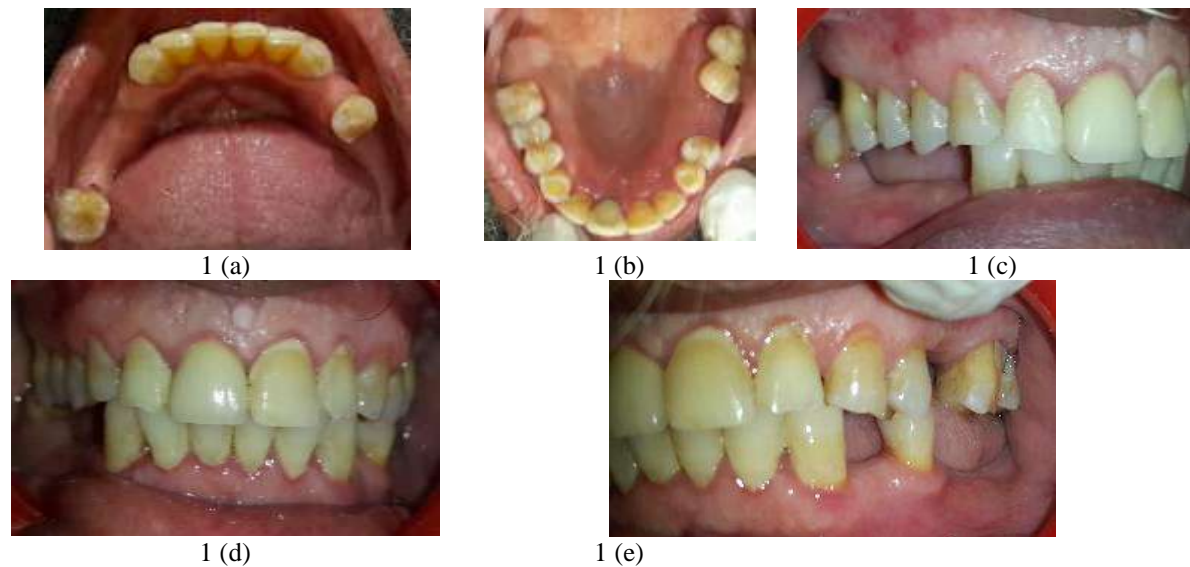


Fig 1:- Preoperative intraoral view.



Fig 2: Metal framework try in



3 (a)

3 (b)

3 (c)

Fig 3:- Try in of waxed up denture after teeth arrangement.



4 (a)

4 (b)



4 (c)



4 (d)

Fig 4:- Insertion of final denture.

### Discussion:-

Different treatment modalities are available for a patient with partial edentulism. The best one should be selected based on proper diagnostic findings and patient's perspective.<sup>4</sup> Cast partial denture is always a viable treatment option due to its excellent retention and stability. An implant supported prosthesis was not selected for this patient as he was not willing for any surgical procedure. Proper designing of cast partial denture for this patient helped in broad stress distribution and didn't provide any detrimental forces to the abutment teeth. In cast partial denture primary retention is mainly accomplished by proper placement of direct retainer on the abutment teeth where as secondary retention is provided by judicious placement of indirect retainer and intimate relationship of the denture bases and major connector with the underlying tissue. Here good stability was achieved by the cast circumferential clasp placed on 35, 47 because of rigid shoulder and reciprocal arm. Bar clasps were placed on 33 and 43 which was not only aesthetically acceptable and also provide good retention. Occlusal and cingulum rests used here as indirect retainers limit the vertical displacement of removable partial denture. Lingual bar major connector used here was easy to design and fabricate, had minimal contact with oral tissues, no contact with teeth and thereby no decalcification of teeth. Thus when certain biomechanical principles are applied to the design of removable partial denture, there will be preservation of remaining structures as well as replacement of lost structures in a logical basis.<sup>3</sup> Hence the current case report justifies the successful rehabilitation of a partially dentate mouth using mandibular cast partial denture which provided best retention, stability, masticatory efficiency, comfort, and good periodontal health to abutment teeth.

**Conclusion:-**

Restoration of partially edentulous distal extension situation poses a challenge to the restorative dentist without compromising the need of the patient. With the knowledge of basic prosthodontics, good clinical skills, and correct case selection cast partial denture can serve a stable, functional and biological restoration. The treatment modality followed for this patient was a simple one but provided best possible result to the patient.

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