

Case Report

“A Cast Partial Denture Opposing a Cast Partial Denture”

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Abstract: A cast partial denture prosthesis is generally not desired by a patient, but in certain cases it remains the only option since there are many patients where a fixed form of partial dentures are not indicated. It is also least practiced by general practitioners while it is of academic interest at higher education level. We present a case of a cast partial denture that not only had to oppose another cast partial denture but both partial dentures had modification edentulous spaces in it. The level of education and motivation that the patient requires in such cases is briefly discussed.

Keywords: Kennedy classification, interim denture, base metal alloys, patient education.

INTRODUCTION

Partial edentulism is one of the most common dental condition and in numerous combinations can exist between a partial edentulous situation and the remaining natural teeth. For every partial edentulous situation, a patient would like to have a fixed prosthesis. The efficiency of a partial denture depends to a large extent on the number and the location of the missing teeth (Sivach, A., & Mattoo, K. 2014). Distal extension, partial denture cases are generally less satisfactory since they are supported by teeth at only one end. Irrespective of the condition, the primary requirement for a cast partial denture to function in the mouth is patient acceptance (Sivach, A., & Mattoo, K. 2014). Patients are reluctant and apprehensive about the nature of removable partial dentures, especially the movement of the denture during function. Therefore, it is important that all the components of the cast partial denture perform their function with a high degree of accuracy. Only in such cases, the displaceable property of the prosthesis will be minimized which enhances patient

acceptance (Gad, M.M. 2017; Urrahman, S., & Mattoo, K.A. 2017).

This article in the form of this case report presents a dual case of a cast partial denture with modification edentulous spaces in the same patient who was highly apprehensive about wearing a removable partial denture. Accurate fit, proper design in combination with continuous patient education and motivation throughout the treatment period elated his fear.

Case Report

A male patient aged 45 years reported to the department of prosthodontics with a chief complaint of missing maxillary and mandibular posterior teeth due to which his mastication was impaired. Social, medical, drug and other relevant histories were non contributory to the existing condition. Dental history disclosed average oral hygiene maintenance record, loss of teeth due to caries and periodontitis. Extra oral examination revealed normal clinical features.

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Figure 1: (a) Mouth preparation in the maxillary arch (b) Mouth preparation of mandibular arch (c) Metal framework trial of maxillary arch (d) Finished cast partial dentures (e) Minimum visibility of metal

Intra oral picture presented that of a Kennedy class 2 modification 1 in maxillary arch and a Kennedy class 3 modification 1 in the mandibular arch (**Fig 1a**). After routine biochemical and radiographic investigations, the prosthetic option presented to the patient was a cast partial denture using base metal alloy. The choice of implant supported single crowns and fixed partial denture were ruled out due to existing occlusion and poor oral hygiene. Routine clinical and laboratory procedures for cast partial denture were done. An interim denture was fabricated after carrying out the mouth preparations. After designing the prosthesis using a dental cast surveyor, necessary mouth preparations were done in the respective arches (**Fig 1a, b**). The design was emphatically focussed on minimum visibility of metal since two cast partial dentures were to be inserted. A final impression was made using elastomeric impression material (Elite H-D; Zhermack). The next clinical appointment involved the metal framework trial (**Fig 1c**) following which the trial for artificial teeth was conducted. Dentures were processed using heat cure denture base acrylic resin (DPI Ltd, Mumbai) (**Fig 1d**) and then both dentures were delivered to the patient (**Fig 1e**). The patient was given instructions regarding maintenance and care of the prosthesis. Throughout the clinical procedures the patient was continuously educated about the positive aspects of the cast partial denture which helped in the reduction of his apprehensions. The patient was put on a follow up protocol (continuous).

DISCUSSION

Depending upon the region, the prevalence of partial edentulism varies (Cooper, L.F. 2016). In certain reported cases it is as high as 20%. It has also been estimated that the increase in partial edentulism in the United States alone may rise up to around 200 million people in next 15 years (American College of Prosthodontists). On one side, we have increased in number of the patients while on the other side the same patients are reluctant to wear the removable prosthesis and it is important to consider that all patients cannot be indicated for a fixed prosthetic denture. Factors like cost, feasibility and clinical indications prevent use of fixed partial denture in many patients. Therefore the science of cast partial denture needs to evolve. The case presented in this article is one such example. Proper designing that reduced the bulk while at the same time maintained the principles were the key to rehabilitation of this patient. One of the key concerns for both patient and the dentist is the visibility of the metal when patient talks or smiles. Mouth preparation other than conventional was performed to enhance maximum masking of metal within the contours of the abutment teeth. The patient compliance was also increased by first asking him to wear an interim partial denture for both arches (Suwal, P. *et al.*, 2017). Such exercise allows patients to compare the comfort and efficiency between the two. For the maxillary denture minimum area to be covered by the major connector was designed. An anteroposterior palatal strap is ideal for fulfilling such objective without compromising any cast partial denture rigidity. Moreover, such design has added advantages that include accommodation of bony

abnormality and does not impair esthetics during the adaptation period (Rahman, S. *et al.*, 2019).

Besides the above mentioned modifications, the partial denture occlusion was designed through the use of functionally generated path as mentioned in the literature (Sivach, A., & Mattoo, K. 2014). Self cleansing features of cast partial denture were incorporated as per the principles (Mattoo, K. *et al.*, 2014).

CONCLUSION

The use of cast partial denture is a versatile prosthetic option that every prosthodontist and general practitioner should practice. Its use should be extended beyond academic compulsions since in the low income countries like India, patients cannot afford the more expensive fixed partial denture options.

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