Cast Removable Partial Denture Improving Dentate Function: A Case Report

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ABSTRACT

Distal extension edentulism affects patient's masticatory function. A cast partial denture with an appropriate design will benefit the partially edentulous patient by providing increased retention and improved dental function. This article described a patient who had a bilateral distal extension cast partial denture in upper arch and complete denture in lower arch. The prosthesis showed a successful rehabilitation with proper function and aesthetics.

Key words: Cast partial denture, partially edentulous.

Received : 07.01.23
Review completed : 09.02.23
Accepted : 12.02.23

The rehabilitation of Kennedy's class I and Kennedy's class II poses great challenges to the prosthodontists because of no distal abutment tooth to the edentulous area to provide retention, support or stability. The saddle area can rotate both away from and towards the mucosa. However, the insertion of implants turns a free-end saddle into a bounded saddle. Considering patients requirements, anatomical status of the remaining tooth and its supporting structures treatment options are described. Implants are considered to be the most successful solution for fixed requirements, but implants are not suitable due to financial reasons, systemic conditions or local anatomical factors, such as an insufficient bone quantity or a poor quality of bone, which requires grafting procedures. Were, many of the patient's due to their age factor don't prefer implants as it is a complex procedure.

The treatment plan depends on the location of missing teeth and number of teeth that have impact on how well the prosthesis restores and maintains functions similar to natural dentition. Cast partial denture's provides improved retention, stability, comfort, masticatory efficiency, and health of the periodontium of the abutment teeth. Removable partial dentures, such as CPDs, are no longer given as a treatment option for patients who are able to receive a fixed prosthesis. Regardless of whether a fixed prosthesis is not indicated, they remain the treatment of choice, particularly in medically compromised patients.

Case Report

A patient of 53 years old female reported to the department of Prosthodontics, sree balagi dental college, Chennai ,Tamil Nadu with a chief complaint of missing teeth and difficulty of eating. The Patient is a vegetarian diet consumer demanding for a conservative approach for restoration.

On intra oral examination patient revealed missing teeth in relation to 13, 14, 16, 17, 22, 25, 26, 27 and completely edentulous in relation to lower arch(fig.1). According to the classification the maxillary arch is classified as Kennedy's class 1 modification II. The patient was discussed about the various suitable treatment options out of which she obtained for a cast partial denture for maxillary arch and removable complete denture for mandibular arch.

Figure.1 frontal view

Procedure:

1. Primary impressions were made using alginate for maxillary arch and impression compound for mandibular arch.
2. The diagnostic casts were obtained and custom trays are made.

3. Peripheral tracing is done using low fusing impression compound; definitive impressions were made using monophase.
4. The maxillary cast was surveyed to determine the guiding plane, path of insertion and to determine the favourable undercut present followed by tripoding.
5. Cast partial denture designing was done for the Kennedy's class 1 condition, mock up preparation were done on the models and the desired preparations were executed on the patient's teeth intraorally. And impression was made using dual impression procedure. (fig.2)

Figure.2 Occlusion preparations on 12,15,23

6. A cobalt chromium alloy was used to fabricate the frame work for maxillary arch.
7. Jaw relation record was established in usual manner, casts were mounted on a semi adjustable articulator teeth arrangement was done.
8. Wax Try in is done to check the esthetics and intra oral occlusion.

After verification, fabrication of the prosthesis is completed insertion is done in the consequent appointment.

Figure.3 frontal view

Figure.4 Occlusal view

Fig.5 frontal view

Discussion

Fixed prosthesis and implants are the most commonly recommend for rehabilitating partially edentulous conditions. But still removable cast partial dentures do stand a place as a choice of treatment option as they are cost effective and do fulfil the masticatory demands. As, dental implants and implant supported dentures are relatively expensive, time consuming may require grafting and augmentation which involves morbidity of the surgical site, for the above described case report anteroposterior palatal bar frame work is given it produces a strong L-beam effect , minimizes soft tissue coverage.

Advantages

1. Durability. These restorations are very durable to compressive and bending forces and do not deteriorate chemically when they come in contact with the liquids or bacteria and the chemical environment of the mouth.
2. More biocompatible.
3. Stress-breaking function. The forces exerted on the edentulous ridge and the supporting teeth are substantially reduced.
4. Greater longevity.
5. Increased resistance.
6. Enhanced stability.

Disadvantages

1. The anteroposterior palatal bar is uncomfortable
2. The bulk and contour may interfere with tongue position

and phonetics.

3. Derives palatal bony support, contraindicated in patients with reduced periodontal support.

Conclusion

Replacement of the missing teeth is important for intake of food. Restoration's need not be expensive to fulfil the nutritional demands. Any restoration should be simple in construction easy for the patient to use it and maintain it, aim in preserving what remains. A simple cast partial denture can be effective in treating long span partialy edentulous conditions.

REFERENCES

1. Di Biase D, Becker, C. Et al: "Evolution of Removable partial denture design." J. Prosthodont. 3: 158-66: 1994.
2. Precisions verankerungen in der zahnarztlichen Prothetik 275-299-1983
3. Reagan S. Et al - "Practical, aesthetic options for retention of removable partial dentures" 1996; 333-340.
4. The new Bego -"Partial denture technique" 2002
5. Helkimo E, Carisson GE, Helkimo M. Chewing efficiency and state of dentition. A methodologic study. Acta Odontol Scand 1978; 36:33-41.
6. Mahmood WA, Watson CJ, Ogden AR, Hawkins RV. Use of image analysis in determining masticatory efficiency in patients presenting for immediate dentures. Int J Prosthodont 1992; 5:359-66.
7. Manly RS, Vinton P. A survey of the chewing ability of denture wearers. J Dent Res 1951; 30: 314-21. Gunne HS. Mastication efficiency and dental state. A comparison between two methods. Acta Odontol Scand 1985; 43: 139-46.
8. Carisson GE. Masticatory efficiency: the effect of age, the loss of teeth and prosthetic rehabilitation. Int Dent J 1984; 34:93-7.
9. Kapur KK, Garrett NR. Studies of biologic parameters for denture design. Part II: Comparison of masseter muscle activity, masticatory performance and salivary secretion rates between denture and natural dentition groups. J Prosthet Dent 1984; 52:408-13