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PARTIAL OVERDENTURE – A CASE REPORT

Dental Science

Dr. Radhika Lekhi BDS, MDS Senior Lecturer, Department of conservative Dentistry and endodontics Sudha Rustagi college of dental sciences and research, Faridabad, Haryana, India

Dr Kunwarjeet Singh* BDS, MDS Professor, Department of Prosthodontics, Dental materials and Implantology, Institute of Dental Studies and Technologies Modinagar, Ghaziabad, Uttar Pradesh, INDIA. *Corresponding Author

Dr Shambhavi Shukla BDS Postgraduate student, Department of Prosthodontics, Dental materials and Implantology, Institute of Dental Studies and Technologies Modinagar, Ghaziabad, Uttar Pradesh, INDIA.

Dr Akash Raj Sharma BDSPostgraduate student, Department of Prosthodontics, Dental materials and Implantology, Institute of Dental Studies and Technologies Modinagar, Ghaziabad, Uttar Pradesh, INDIA.

ABSTRACT

Removable partial or complete overdentures supported by roots of natural teeth have more predictable prosthodontic outcomes as compare to conventional removable complete dentures or simple acrylic resin partial dentures (flipper) because of increased support, stability and retention and decrease in rate of residual ridge resorption due to presence of teeth (roots) and periodontal ligament. So preserving few remaining teeth/roots and fabricating an overdenture is always a better option as compare to extraction of remaining teeth and fabrication of acrylic RPD or denture.

KEYWORDS

Overdenture, partial overdenture, proprioception, flipper

INTRODUCTION

Edentulism leads to impairment of oral function, esthetic and psychological changes. Adaptation to conventional removable complete dentures is a complex learning process, particularly to mandibular denture because it is surrounded by tongue, cheek and lip which try to unstable it. Most of problems occur in mandibular conventional dentures. Patients who are originally adaptive wearing complete dentures may become maladaptive with time due to continue residual ridge resorption, intra oral physiological changes and development of altered muscle pattern [1].

Tooth supported overdenture philosophy postulated a transfer of occlusal forces to the alveolar bone through the periodontal ligament of retained roots [2]. Proprioceptive feedback from the periodontal ligament was envisaged to act to prevent occlusal overload and consequently avoid residual ridge resorption adjacent to roots and rest of the ridge due to excessive forces [3]. They also provided improved function as compare to conventional denture such as biting force, chewing efficiency and even phonetics. The impairment of these functional parameters created by Edentulism reflects the significant role of periodontal receptors for sensory feedback and discriminatory ability from the retained roots [4]. Tooth loss results in loss of proprioception mechanism that has been part of sensory programme throughout life. The obvious way to prevent denture problems is to save the natural teeth,' we should consider all possible options of saving roots and fabricating "overdentures."'. Personal experience with retaining roots of selected key abutment teeth has demonstrated the certain advantages of overdenture over the use of complete dentures.

Case report:

A 50 year old female patient reported to our dental center with chief complaint of mobile anterior teeth and poor esthetics due to missing teeth (fig.1). clinically and radiographic examination revealed periodontally sound remaining teeth except tooth 12, 13, 21 and 22 which were mobile. Two treatment options were presented to the patient. First one was the root canal treatment of the tooth 12,13,21 and 22 followed by fabrication of the overdenture and second was the extraction of teeth followed by fabrication of conventional removable complete denture. Patient selected the first option as she does not want the extraction of the teeth. After root canal treatment of four anterior teeth, teeth preparation was done with tapered round end bur with chamfer margin. The teeth should be prepared with incisal or occlusal taper without any undercut. the taper and cervico-incisal height of the abutment depends on the crown: root ratio, inter-arch space and space required for the arrangement of the teeth . Impression was made after tooth preparation and metal copings were fabricated on the cast obtained after pouring the impression. After evaluation of proper fit of copings, cementation was done with glass ionomer cement (Figure 2) . The metal copings protect teeth from dental caries and provide retention by friction between denture base and metal coping. After cementation of metal coping, the overdenture was fabricated by same technique used for fabrication of conventional removable complete dentures. Overdenture prosthesis was successfully delivered to the patient (figure 3 and 4)

DISCUSSION

Cultural and social background appears to play a significant role in the reaction of people to partial and complete edentulousness. Patients demand better esthetics, chewing comfort, and function. Edentulousness appears to be more prevalent in people of advanced age. Complete loss of teeth leads to impairment of oral functions, esthetics, physiologic and psychologic changes. Adaptation to complete dentures is a complex process and must be regarded on a somatic and psychological basis. Edentulous patients who have worn dentures for many years gradually lose their ability to cope with complete dentures as their age increases, and they may not feel comfortable because of progressive, irreversible and inevitable loss of residual ridge.

Historically review of literature supports that by saving the teeth which are not able to support fixed partial denture or cast partial denture can be used as overdenture abutment by modifying crown root ratio, provided they are periodontally sound [5,6,7]. Overdenture derives their support from one or more abutment teeth by completely enveloping them beneath the fitting surface. The abutment teeth are usually Root canal treated and either simply reduced or used in conjunction with metal coping, telescopic crown, and stud or bar attachment.

It has been found that Overdentures has better retention, stability, support, chewing efficiency as compare to conventional complete dentures and also there is decrease in rate of residual ridge resorption because of proprioception, better stress distribution and transfer of compressive forces into tensile forces by periodontal ligament which effects rate of bone remodeling Complete denture fabrication, in particular mandibular dentures, for maladaptive elderly patients becomes difficult. Therefore, they are the group of patients who will benefit most from the overdentures. Overdentures supported and/or

retained with a few remaining teeth or implants can be a predictable treatment that will fulfill most demands of elderly denture patients.

CONCLUSION

Removable overdentures supported by roots of natural teeth have more predictable prosthodontic outcomes because of increased support, stability and retention as compare to complete dentures. Overdenture provide better function than complete dentures such as improved biting force and chewing efficiency and increased speed of controlled mandibular movements. It also reduced rate of residual ridge resorption because of transfer of compressive forces into tensile forces by periodontal ligament and better stress distribution.

Legends:

Figure 1. periodontally compromised anterior teeth

Figure 2. Metal copings

Figure 3. Tissue surface of overdenture

Figure 4. Prosthesis in occlusion

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