Case Report

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Tissue Supported Overdentures: Something Is Much Better than Nothing

Jaswinder Kaur[1*]

[1]Reader, Department of Prosthodontics, Baba Jaswant Singh Dental College, Hospital and Research Institute, Ludhiana, Punjab, India.

ABSTRACT

Background: Extraction of teeth is followed by residual ridge resorption. This occurs at a faster rate with complete dentures as compared to overdentures where few teeth or roots are retained for support. Tooth supported overdenture is a successful clinical concept with good long-term results. In this case report, prosthodontic rehabilitation of a partially edentulous patient with attachment retained tooth supported overdenture has been discussed.

Keywords: Attachment, Overdenture, Partially edentulous, Ridge resorption.

INTRODUCTION

Preventive Prosthodontics emphasizes the importance of any procedure that can delay or eliminate future Prosthodontics problems.[1] The overdenture is a logical method for dentist to use in preventive Prosthodontics. Overdenture is defined as any removable dental prosthesis that covers and rests on one or more remaining natural teeth, and/ or dental implants.[2]

The physiological advantages of overdentures are increased stability and retention of the prosthesis, so less trauma to the supporting tissues, increased ability to perceive interocclusal thickness and awareness of maxillomandibular relationships, due to maintenance of periodontal proprioception, decreased resorption of the basal bone used for denture support along with psychological benefits. The fact that patients can masticate food more efficiently with overdentures than with complete dentures justifies increased cast and time involved in their construction.[3] This case report describes rehabilitation of partially edentulous patient with attachment retained tooth supported overdenture.

CASE REPORT

A 45 year old female reported to the department of Prosthodontics with chief complaint of difficulty in chewing due to missing teeth in lower jaw. Intraoral examination revealed partially edentulous mandibular arch with only three teeth remaining 13, 14 and 24(Figure 1). Radiographic examination revealed good bone support with respect to present teeth. Keeping in mind the presence of sound teeth with sufficient space available for placement of attchments, the patient was advised tooth supported overdenture as treatment option to which she agreed. Intentional Root canal treatment was carried out for both premolars and right canine. Teeth were reduced to 2mm above gingival level . Primary impression was made with alginate impression material. Conventional procedures were followed for fabrication of mandibular complete denture. On the day of insertion, complete denture was tried in patient's mouth to check for fit and occlusion.

Teeth were further reduced to .5mm above gingival level to receive overdenture attachments. Ceka Preci clix Radicular kit was used which contains preparation tools, overdenture post with male and female components.(Figure 2). Root canal was prepared with penetration bur (Figure 3)and diamond bur was used to prepare base of the post.

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***Correspondence Dr. Jaswinder Kaur.**
Department of Prosthodontics, Baba Jaswant Singh Dental College, Hospital and Research Institute, Ludhiana, Punjab, India.
Email: dr.jaswinder.kaur@gmail.com

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Fig 1: Intra oral view showing remaining teeth.

Fig 2: Preparation tools with overdenture post.

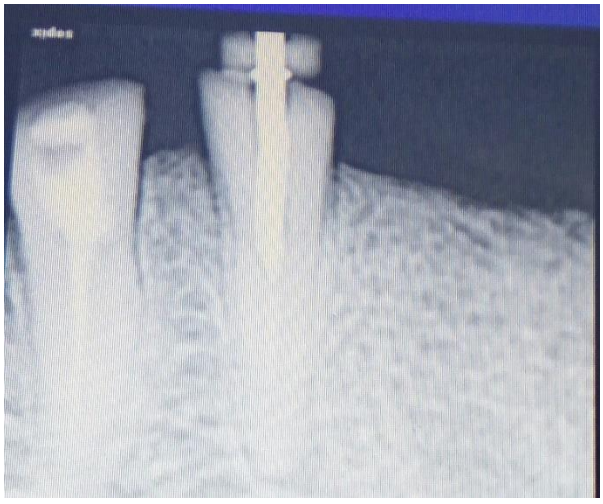

Fig 3: Preparation of the canal

Reamer was used to prepare for the diameter of the post. Titanium overdenture post with male component was cemented with Glass ionomer luting agent.(Figure 4 and 5) Corresponding areas in the intaligo surface of the denture were with carbide bur to incorporate female component. Elastic space maintainer was placed on to the male component of the post and metal housing with

Fig 4: X ray showing cemented overdenture post.

Fig 5: Cemented overdenture post in patient's mouth.

Fig 6: Metal housing clicked over male component.

Fig 7: Tissue surface showing female component

normal retention female component(yellow) was clicked over it.(Figure 6) It was picked up in the denture with self cure acrylic resin material.(Figure

7) Excess resin was trimmed off and finished, polished denture was inserted in patient's mouth and checked for retention. Patient was given instructions for insertion, removal and maintenance of the mandibular complete denture . Follow up was carried out at periodical intervals.

DISCUSSION

Patient got removable partial denture made earlier with some of teeth present. Later on, she had to go for extractions of supporting teeth as they became mobile. Overloading of remaining abutments due to poor planning could have result in their premature extractions. She did not want to go for extraction of the remaining teeth. The resorption of the basal bone coupled with a decline in the patient's neuromuscular function due to a decrease in proprioceptive response resulting from the loss of teeth eventually lead to failure of the denture.[4] Moreover retention and stability of the complete denture would also be a problem as the ridge was resorbed in posterior region. So. overdenture was selected as treatment modality.

The studies indicate that the natural anterior teeth exhibit more sensitivity and discrimination than the posterior teeth and therefore give more discrete sensory input. However, posterior teeth also should be retained for overdentures, when possible, even though they contribute less to proprioceptive sensibility. The majority of natural teeth used to support overdentures are devitalized and treated endodontically. Various studies reported that vital and devitalized teeth (mostly in overdenture) have equal sensory input capabilities. Conventional procedures are followed in overdenture fabrication as in that of complete denture. Although initial cost in fabrication of overdenture is high in terms of endodontic treatment and attachments, but if compared with the long term additional benefits of this option,over others , overdenture proves to be a good alternative.

Miller[5] advised overdentures as a means of preserving residual alveolar bone as lessened resorption of alveolar ridge tissue over a period of 6 years in 46 overdenture patients. .Rissin[3] et al compared the masticatory performance and elctromyographic activity of patients with complete dentures, overdentures , natural teeth and reported that overdenture patients had chewing efficiency one third higher than with complete dentures with equivalent amount of muscle effort.

One stud attachment on each side of the arch will usually suffice. Increasing the number of attachments in the denture does not produce a corresponding improvement in retention, it may contribute to improved stability but leads to a weaker structure which is difficult to clean and maintain. In this case, attachments were given in one tooth on each side as more number of attachments lead to complexity of the procedure along with weakening of the denture.[6]

The most frequent problem encountered is the caries breakdown of the abutment teeth. Meticulous home care is advised as a cure for this , with frequent recall to detect incipient lesions. Derkson GD and Mac Entee MM [7]concluded in their study that0.4% SnF**2** is an effective agent in reducing the progress of gingivitis around overdenture abutments. Rebasing and repairs are normally complex when attachments are employed although the stability and retention they provide can be most valuable.[6] As tissue coverage and extensions are same for that of complete denture, it is easy to compensate for loss of supporting teeth with time by reliningthe denture.

Sufficient inter ridge distance should be available to provide space for attachment, acrylic to retain attachment, artificial tooth over the natural tooth root. So proper case selection plays important role in success of the treatment Optimum aesthetics is a goal to which we all strive and the proper case selection and subsequent implication of treatment must be carefully carried out to achieve this goal.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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