

IMMEDIATE OVERDENTURE – AN ALTERNATIVE OPTION IN PREVENTIVE PROSTHODONTICS

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Abstract: Extreme cases of dental neglect are often managed by short and convenient treatment procedures that are actually determined by economic factors rather than indicated treatment options. One such indication is for the use of an immediate overdenture that involves two conventionally different complete dentures, an immediate denture and an overdenture of any one type. Basic principles in Prosthodontics stress on bone preservation at all levels. The most competent method of alveolar bone preservation is preservation of teeth. This article in the form of case report presents a case of extreme dental neglect that was successfully rehabilitated with an immediate denture that was supported in the maxillary arch by the roots after undergoing endodontic treatment.

Keywords: endodontic, roots, extraction, template, suturing, vital roots

Introduction

Prevention in prosthodontia generally emphasizes the significance of certain clinical and laboratory procedures that can delay or even eliminate the need of prosthesis in the future. The prosthesis may even be a modification of the existing one. In one of the most common treatment options, retaining roots of one or more teeth for overdenture offers patient's advantages like improved stability, better proprioception and feeling of naturalness. With advanced dental technology, patients have also demanded immediate denture treatment, especially in esthetic conscious patients or who are socially active like politicians or

celebrities. One needs to understand the basic difference in indications between treatment options of an overdenture, immediate denture and implant supported overdenture.¹⁻⁴ Because of the increased popularity as a viable alternative to conventional complete denture for partially edentulous situation, use of overdentures has risen considerably in the past two decades.⁵ Overdentures have more of biological importance while immediate dentures fulfill mostly functional and psychological requirements that are mainly associated with functional rehabilitation that is immediate in nature. The combination of two is essentially unique to situations which are in

the real sense not ideal. This article in the form of a clinical case report describes one such partially edentulous situation that was successfully rehabilitated by immediate overdenture prosthesis. The type of overdenture used in this case was non coping with simple tooth modification after endodontic treatment.

Clinical case report

A 43 year old male patient reported to the department of Prosthodontics with chief complaint of dissatisfaction with his existing

dental condition. Halitosis, inability to eat, impaired aesthetics and food impaction were other commonly encountered problems. Medical, social, drug and other relevant history were noncontributory. Extra oral examination presented a square face with convex profile. Intra oral examination a Kennedy class 1 partial edentulous situation in both arches with modification one in mandibular arch. Associated dental problems included generalized mobility of all mandibular and maxillary teeth (Grade 3)

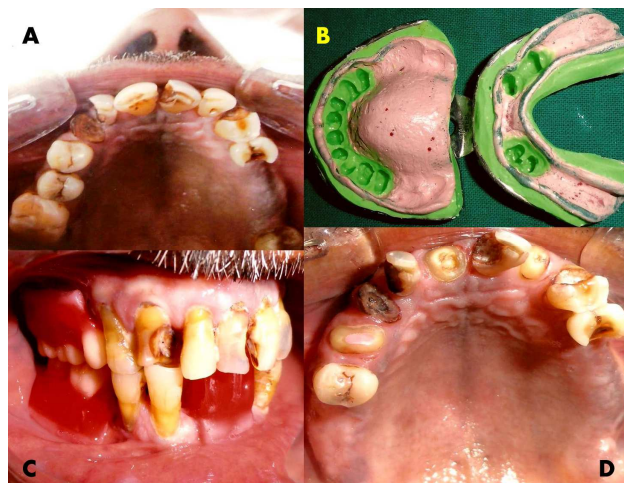


Figure 1: (A) Intra oral view of maxillary dentition (B) Functional impression for both arches (C) Posterior trail denture to verify centric (D) Endodontically treated teeth prepared to serve as overdenture abutment

With exception of maxillary left central incisor and canine and right sided first premolar. Maxillary natural teeth also had deep sub gingival caries (**Fig 1 A**). After thorough radiographic investigations and diagnostic mounting a treatment plan was presented to the patient that included immediate denture for mandibular arch and a non-coping immediate overdenture for maxillary arch. Endodontic treatment was done as part of preliminary treatment in relation to maxillary anterior teeth. For both maxillary and mandibular prosthesis final impressions were made that recorded underlying tissue in function (**Fig 1 B**) utilizing irreversible hydrocolloid (Thixotropic, Zhermach, Italy) and zinc

oxide eugenol impression materials (DPI, India). Tentative centric relations were recorded to mount maxillary and mandibular casts similar to the method used for a Kennedy class I partial edentulous situation (**Fig 1C**). Meanwhile, for maxillary arch the teeth that were to be retained to act as overdenture non coping abutment were prepared for the level of 1 mm above gingiva and silver amalgam was filled over them (**Fig 1D**). After verifying tentative jaw relations teeth were arranged on a semi adjustable articulator Hanau Widevue (Waterpik, Ft Collins, USA) (**Fig 2 A**). At the stage of denture processing just before packing of heat cure acrylic dough an over impression was made of the final casts and

surgical templates were prepared with clear acrylic for both maxillary and mandibular arches (**Fig 2B**). The denture was processed into heat cure denture base acrylic (DPI-Heat cure, Dental products of India Ltd, Mumbai, India) (**Fig 2 C**). At the next clinical appointment mandibular teeth were

extracted first (**Fig 2D**) following which with the help of a clear acrylic template (Fortex; Lucite Intl, Durham), necessary modifications in bone contours was done (**Fig 2E**). The same procedure was done for maxillary arch also (**Fig 2 F**). Sutures were placed.

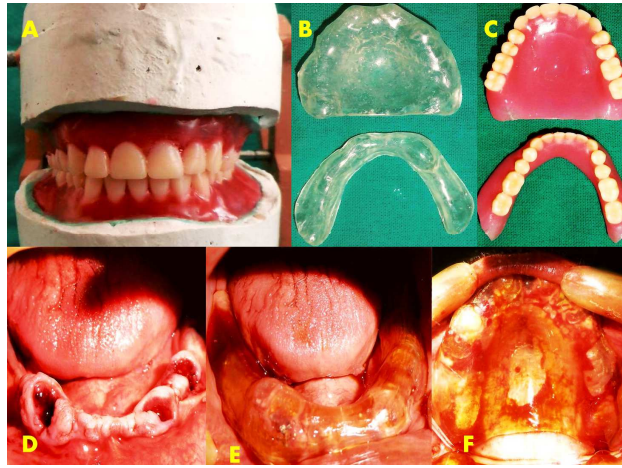


Figure 2: (A) Arrangement of teeth (B) Clear acrylic surgical templates (C) Processed final complete denture (D) Mandibular teeth extracted (E) Surgical template guiding necessary surgical modifications (F) Maxillary surgical template overlying prepared teeth for overdenture

The patient was given necessary instructions regarding care and maintenance of both prosthesis. The patient was followed up as per the protocol for immediate denture. After a period of 3 months the mandibular and maxillary dentures were relined as per the protocol for immediate dentures.

Discussion

Overdenture provides significant advantages biologically, few of them being decreased bone resorption, increased masticatory performance, psychological well-being and directional sensitivity.⁵⁻⁹ Immediate denture on the other side does allow patients not to be exposed socially when they are completely edentulous. Immediate overdenture as one described in this case understandably possess the advantages of both. The principle behind immediate overdenture is to defer the inevitable state of complete edentulism as long as one can. However, it is important that the natural

abutment has ideal location so as to allow minimum lateral forces on the ridge. As in this case the abutments for maxillary immediate overdenture are located in a tripod configuration which allows the denture to be more stable than would have achieved if only two abutments were present.^{10, 11} Another significant aspect of immediate overdenture is the maintenance associated with it. Failure to instruct the patient in proper care increases the chances of treatment failure.¹² In the present case, the abutments that were selected for supporting an overdenture were not exactly in ideal configuration, but the single most important determinant in this case was the opposing occlusion which was a single complete denture. In such case, the forces exerted by the single denture are less and therefore won't impede the stability of maxillary overdenture. Although maxillary completely edentulous arch has sufficient

bone for long term support and stability, the presence of teeth in the maxillary arch would provide the advantage of psychological comfort as well as bone loss.

Summary and Conclusion

Within the scope and limitations of principles that govern the fabrication of immediate and overdentures, it can be said that immediate overdenture in the form of non-coping with endodontic treatment is a valid option for patients with compromised dental condition. However, further studies need to be done to determine the time period at which such dentures should be relined. In this case we chose the option for immediate denture.

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