Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr ICV 2018= 82.06

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Case Report

Dilemma of decisions in selecting teeth to be retained or removed for an Immediate overdenture

Tanuj Minocha[1], Nupur Rathi [2], Nadeem Yunus[3]

[1] Associate Professor, Department of Periodontics, DJ College of dental sciences, BRAU;
[2] Associate Professor, Department of Prosthodontics, DJ College of dental sciences, BRAU;
[3] Professor, Department of Prosthodontics, JMI dental college, JMIU

***ABSTRACT*:**
One of the toughest decision that a periodontist has to make in a multidisciplinary dental team is the declaration of whether to retain or extract the natural tooth. A mobile tooth in the vicinity of having between a restorable and a non restorable mobility grades has to be made at first contact with the patient which removes the chances given to a mobile tooth to recover. Prosthetic treatment options like immediate dentures and immediate overdentures very less recommend periodontal evaluation since decision to retain teeth lies on mechanical rather than biological principles in such cases. We present a case of a 48 year old female patient whose decision to retain natural teeth was done after periodontal consultation. Such consultation improved selection of abutment for immediate overdenture.
Keywords: periodontology, prosthodontist, multidisciplinary, complete denture, tooth mobility.

Received: 25 August, 2019 Revised: 8 October, 2019 Accepted: 12 October, 2019

Corresponding Author: Dr. Tanuj Minocha, Associate Professor, Department of Periodontics, DJ College of dental sciences, BRAU, India

This article may be cited as: Minocha T, Rathi N, Yunus N. Dilemma of decisions in selecting teeth to be retained or removed for an Immediate overdenture. J Adv Med Dent Scie Res 2019;7(12):95-98.

Introduction

Planning complete denture prosthesis (CDP) in a completely edentulous patient is different from planning multiple complete denture prosthesis on the same patient. Every prosthodontist should approach completely edentulous patients with the same principle. Sounds simple, but the question is how? The incidence of complete edentulism has been estimated between 7 % and 69 % internationally.[1] The prevalence of edentulism is seen in all age groups and according to a study the global prevalence of edentulism in the age group of less than 50 years was 2.8%, while above the age group of 50 years, it was 14%.[2] therefore when a patient aged between 50 to 60 years who has become completely edentulous seeks prosthodontic care, one must understand the fact that this completely edentulous patient will live for another 20 to 25 years more in that edentulous state. The average life expectancy of complete denture prosthesis made of heat cure denture base acrylic resin is 4 to 5 years. So in the next 20 to 25 years, the same patient will have to wear 4 or 5 complete dentures. And if the patient is happy or satisfied with the prosthesis, then it is most likely he will visit the same prosthodontist for the remaining period of his life. In short, a single completely edentulous patient can be served with four complete dentures by any practitioner. This is a practice management with a far sighted vision. The only challenge to the prosthodontist is how he plans the dentures for next 20 to 25 years with ever changing residual ridge anatomy. One known principle treatment is use of overdentures which retain natural teeth and preserve the integrity of the residual alveolar ridge over a long period of time. The other significant advantages of overdentures are increased

masticatory efficiency, psychological well-being and directional sensitivity. [3-5]

A large number of patients seeking prosthetic care also fall in a category of being partially edentulous, but the condition of the teeth is non-functional and therefore seeks to complete extraction. Since anterior teeth are the last to be lost in the edentulous cycle, the primary concern of patients is the social embarrassment that they have to undergo if the anterior teeth are removed. For such esthetic conscious patients, the option of immediate denture is the most lucrative. A combination of immediate and overdenture therefore fulfills both biologic preservation and psychological satisfaction for the patient. Retaining natural teeth or extracting natural teeth is an easy decision for a prosthodontist since he looks and thinks about the mechanical principles of complete dentures which he needs to fulfil. But for a periodontist, the dilemma is both moral and ethical since he might not want to extract a tooth, which he feels can be saved by a surgical or a non surgical treatment. A tooth serves during phonetics,[6] aids stereognosis[7] and is a very significant tool for judging the existing vertical dimensions of the face and the occlusion. [8] Periodontal consultations before fabrication of a prosthesis on existing natural teeth will aid the prosthodontist to make a better choice for long term success. This article describes the rehabilitation of a partially edentulous situation using an immediate overdenture option in which the choice of retaining the abutments was done after periodontal consultation.

Case report

A female patient aged 48 years was referred from department of oral medicine with a diagnosis of kennedy class 1 partially edentulous maxillary and mandibular arches with a guarded prognosis for the remaining natural teeth. Medical history revealed the onset of menopause two years back with no other reported systemic disturbances. Social, drug and other significant histories were noncontributory. Extra oral examination did not reveal any significant negative findings except the presence of a long, thin and hypertonic maxillary lip **(Fig 1A)**. Intra oral examination, palpation and percussion revealed proclined maxillary anteriors (12,13,22,23), intact maxillary right first premolar, intact, but severely spaced maxillary anteriors with periodontal bone loss and both first premolars. Diagnostic impressions were made with irreversible hydrocolloid (CA 37; Cavex, Haarlem, Holland) from which diagnostic casts were retrieved **(Fig 1B, C)**. The diagnostic casts were then surveyed, followed by the fabrication of occlusal rims and jaw relations (as in the case of conventional class 2 partially edentulous situation). This was followed by mounting of both casts on a semi adjustable articulator (Whip Mix series 3000; Elite Dental Services, Inc, Orlando). A treatment plan was developed at this stage, which included maxillary immediate denture and a mandibular immediate overdenture to which the patient consented. Other treatment options presented to the patient included implant supported prosthesis preceded by extraction of remaining natural teeth, or a conventional immediate denture.

Since the teeth were not possessing the ideal axial inclination, a periodontal consultation was requested for giving their opinion regarding the long term prognosis of each tooth for supporting an overdenture. The periodontal evaluation was conducted after a thorough oral prophylaxis. Mobility of the teeth was not the only factor in choosing the abutment teeth for an overdenture. Other factors like the presence of attached gingiva, the condition of the cementum, the angulation of the teeth, the contacts of the opposing teeth and the root surface area were all taken into consideration and in the end it was decided that all maxillary teeth will be extracted while only two natural teeth were ideally suitable for overdenture abutment. This was followed by endodontic treatment of teeth to be retained (mandibular right canine and left first premolar). The two endodontically treated teeth were then later prepared to serve as an overdenture abutment (amalgam rest). Meanwhile, in the laboratory, the natural teeth on the mounted casts were reduced **(Fig 1D)**, and teeth were arranged on them **(Fig 1E).** The dental casts were duplicated following which a clear acrylic surgical template was fabricated. Once the dentures were ready the maxillary and the mandibular teeth were extracted **(Fig 2A,B)** which was followed by surgical template guided alveoloplasty **(Fig 2C,D)**. The dentures were inserted and borders and occlusion were evaluated and corrected **(Fig 3A,B)**. After a period of three weeks once the healing was complete both the dentures were relined to compensate for deficiencies

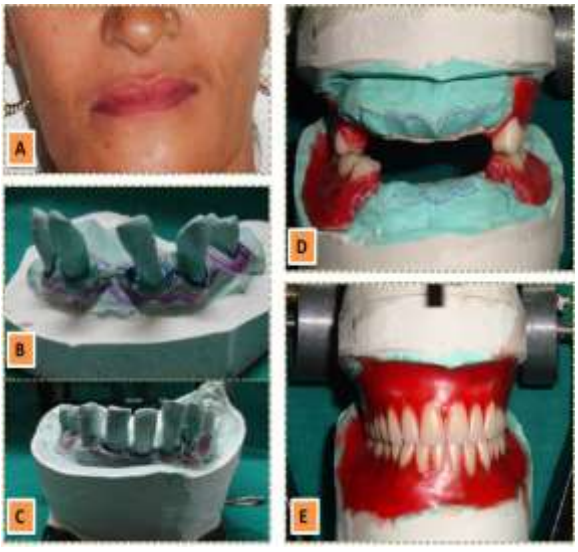

Figure 1: (A) Extra oral view (B) Maxillary diagnostic cast (C) Mandibular diagnostic cast (D) Removal of teeth from cast (E) Trial denture

Figure 2: (A) Maxillary extraction (A) Mandibular extraction (A) Maxillary surgical template (A) Mandibular surgical template

Figure 3: (A) Centric Occlsusion right side (A) Centric occlusion left side (A) Extra oral view after wearing complete dentures

in border molding and bone resorption changes **(Fig 3 C)** . The patient was happy with the outcome of the prosthesis.

Discussion

Immediate overdenture being a hybrid between two forms of special dentures (immediate denture and overdenture) [9,10] requires denture insertion in the patient after removing all undesired teeth leaving healthy natural teeth (with/without endodontic treatment) to serve as abutments. The decision to offer the patient with a treatment option like immediate overdenture is purely a clinical one and should be taken with careful prediction of denture remaining retentive and stable since the procedures of border molding and inability to do a denture trial are drawbacks of immediate dentures. Also decision to extract the remaining teeth should be based on not compromising the principles of esthetics in complete dentures. The choice of abutment should be in consultation with a periodontist and all factors should be considered before deciding extraction of teeth. The position of natural anterior teeth may not be compatible with aesthetics and duplicating these positions thus may not give desired results.[11] Factors that determine the success of immediate overdenture include the existing partial edentulous state,[12] the needs of the patient [13] (why patient is desiring immediate denture), effective diagnosis and treatment plan (how to achieve the objectives of impression making since border molding and final impressions have to be made as that for a cast partial denture, status of vertical dimensions: whether vertical dimensions are maintained or not, can horizontal jaw relations be recorded in the partial edentulous situation,) and the final design of the prosthesis (overdenture designing using two, three or four abutments). [14]

Another problem in immediate overdenture is the decision of when to reline the denture. When resorption of the residual alveolar ridge undergoes, the denture moves which causes undue and harmful stresses on the abutment teeth. [15] One may also need to reduce the abutment teeth further after bone resorption since the distance between the fulcrum (abutment) and soft tissues should not be more. The decision to do relining in this case was taken immediately after 3 weeks as it was observed that the bone had resorbed more than anticipated thus leading the mandibular denture to rock. Subsequent relining was further required over a period of 3 months and one year till bone was stable.

Conclusion

Immediate overdenture is a multidisciplinary treatment in which a periodontist, endodontist and oral surgeon are as essential as a prosthodontist. Selection of tooth to serve as abutment should be evaluated by a periodontist who is in a better positon to examine the periodontium.

Acknowledgement

The authors hereby acknowledge the cooperation that their respective heads of the department have shown during the treatment of this patient.

References

[1] Xie Ainamo A. Association of edentulousness with systemic factors in elderly people living at home. Commun Dent Oral Epidemiol 1999; 27: 202-209

[2] Tyrovolas S, Koyanagi A, Panagiotakos DB, Haro JM, Kassebaum NJ, Chrepa V & Kotsakis GA. Population prevalence of edentulism and its association with depression and self-rated health. Scientific reports 2016;6:37083

[3] Crum R and Rooney G. Alveolar bone loss in overdentures. J Prosthet Dent 1978; 40:610

[4] Mattoo KA, Yadav L, Rahman SU. Immediate overdenture - a treatment option for bone preservation. Journal of Medical Sciences and Clinical Research 2015;3:3879-82
[5] Morrow R, Powell J, Jameson W, Jewson L and Rudd K. Tooth supported complete dentures: Description and clinical evaluation of a simplified technique. J Prosthet Dent 1969;27: 414
[6] Mattoo K, Kapoor A. Improving esthetics to improve behavior through enhancing phonetics. WebmedCentral BEHAVIOUR 2014; 5: WMC004724
[7] Singh V, Mattoo KA. Oral Stereognosis pattern in patients with dental prosthesis in the elderly population. Int J Clin Exp Physiol, 2014;1:211-15.
[8] Brar A, Mattoo KA, Singh Y, Singh M, Khurana PRS, Singh M. Clinical reliability of different facial measurements in determining vertical dimension of occlusion in dentulous and edentulous subjects. Int J Prosthodont Restor Dent 2014;4;68-77
[9] Mattoo K, Kapoor A, Jain S. Immediate overdenture – an alternative option in preventive prosthodontics. Med Res Chron 2015;2:26-29
[10] Preiskel. Overdentures Made Easy. Chapter 2 Chapter 3, pp. 21-43, pp.45-65.
[11] Rahn AO, Heartwell CM Jr. Textbook of complete dentures. 5th ed. Philadelphia: Lea & Febiger; 1993. p. 441.
[12] Sivach A, Mattoo K. Simplifying designing of a cast partial denture in Kennedy class 1 partial edentulous situation to enhance its self-cleansing ability. WebmedCentral DENTISTRY 2014;5:WMC004708
[13] Tamura T, Sunozaki M and Miki K. The overdenture using a permanent magnet. Nippon Dental Review 1978;433:67
[14] Crum R and Rooney G. Alveolar bone loss in overdentures. J Prosthet Dent 1978;40:610
[15] Loiselle RJ, Crum RJ, Rooney GE and Stuever CH. The physiologic basis for overlay dentures. J Prosthet Dent 1972; 28:4,