International Journal Dental and Medical Sciences Research
Volume 4, Issue 6, Nov-Dec 2022 pp 769-772 www.ijdmsrjournal.com ISSN: 2582-6018

Tooth Supported Mandibular Overdenture – A Case Report

Dr.Jasmin Cyril[1], Dr.Arya Aravind[2], Dr.Jinson James[3], Dr.George Francis[4] , Dr.Mathew M Alani[5], Dr.Reshma Raju[6]

1,2,3, post graduate students, 4. Professor and HOD, 5.Professor,6.Senior Lecturer
Department of prosthodontics and crown and bridge, St Gregorios dental college Chelad , Kothamangalam.

Submitted: 15-12-2022 Accepted: 26-12-2022

ABSTRACT
The prosthetic rehabilitation of partially edentulous arch by an artificial substitute is always a challenge for the prosthodontists. There is always a problem of retention, stability and support of the artificial prosthesis. It is most difficult to satisfy the patients who have high retentive demands especially in the mandibular removal partial denture prosthesis. Various types of treatments for rapidly increasing elderly population with partially or completely edentulous patients may be indicated. Conventional complete dentures,tooth and implant-supported overdentures are common treatment modalities. This article describes a case reports of a partially edentulous patient were successfully rehabilitated with a comprehensive treatment of mandibular natural teeth supported overdenture without attachment.

Key Words: Over Denture, Natural teeth, Residual Alveolar Ridge, Metal copings

I. INTRODUCTION

According to GPT 9[1] overdenture is an any removable dental prosthesis that covers and rests on one or more remaining natural teeth, the roots of natural teeth, and/or dental implants; a dental prosthesis that covers and is partially supported by natural teeth, natural tooth roots, and/or dental implants. M.M. DeVan's Dictum states that[2] "Perpetual preservation of what remains is more important than the meticulous replacement of what is lost".Devan's concept is employed in tooth supported overdenture to a great extent wherein a complete denture overlies on retained teeth, tooth roots. This treatment is not a new concept and dental practitioners have successfully used existing tooth structures or retained roots to retain, stabilize and support the complete denture for more than a century[3]. This clinical report describes fabricating a tooth supported mandibular overdenture retained with metal copings for mandibular arch retaining canines and a premolar.

II. CASE REPORT

A 70-year-old female patient visited the Department of Prosthodontics and Crown & Bridge, St.gregorios dental college ,Kothamangalam, Ernakulam,with the chief complain of inability to chew food properly due to many missing teeth in the mouth and complains about fractured FPD in relation to 42 to 46. She had a completely edentulous maxillary arch.Mandibular arch was partially edentulous with Kennedy class II modification 1(Figure 1).

Figure 1

The tooth that was present in the mandibular partially edentulous arch were 33,41 and a FPD in relation to 42 to 44 with a cantilever in relation to 45 and 46. The period of edentulism for the patient was 3 years and the tooth loss was due to multiple caries and periodontal problems. She had been wearing conventional maxillary complete denture and mandibular removable partial dentures since then. The patient was happy with her maxillary present prosthesis and not happy with the present mandibular prosthesis and wanted prosthesis with good retention, stability and support as compared to her existing mandibular denture.

On intraoral examination, fractured FPD were noticed and also intraoral periapical radiograph of 41 and 42 shows periapical radiolucency and a mild pain when it is purcussed. The medical history of the patient was taken, and it shows no relevant medical history affecting the prosthodontic treatment.

International Journal Dental and Medical Sciences Research
Volume 4, Issue 6, Nov-Dec 2022 pp 769-772 www.ijdmsrjournal.com ISSN: 2582-6018

Treatment Plan

Various treatment options has been discussed with patient and she agreed upon mandibular tooth supported overdenture without attachments.Patient referred to the department of surgery for extraction of 41,42 and the department of conservative and endodontics for the intentional RCT for 33.The tooth 43 were already root canal treated and crown was placed.(Figure 2)

Figure 2

After the extraction and RCT, dome shaped tooth preparation was done on 33,43,and 44 with a chamfer finish line. Post space preparation was done and impression was made with additional silicone for the fabrication of copings. The copings obtained were checked for fit in the patient's mouth and finally cemented with glass ionomer cement. The thickness of the copings was 1mm.(Figure 3)

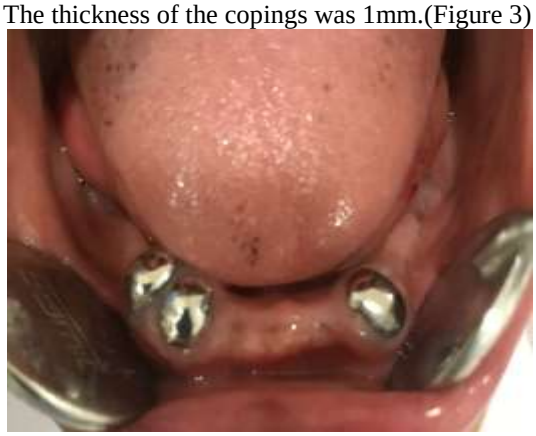

Figure 3

Primary impressions for the maxillary and mandibular arches were made with alginate. The impressions were poured using type II gypsum products and a mandibular special tray was fabricated with self-cure acrylic resin. Border molding was done for mandibular arch with green stick impression compound. Final impressions for the mandibular arch were made with light body addition silicones. Master casts were prepared by pouring the impressions in Type IV gypsum products.

Occlusal rims were fabricated; maxillomandibular relations recorded and transferred onto non-adjustable articulator. Teeth setting was done, evaluated in the patient's mouth for phonetics, vertical and centric relation and finally esthetics. Vertical dimension was verified and centric and eccentric contacts checked. Patient's approval was taken, and the curing of the final denture was done in heat-cure acrylic resin .Denture were polishes and delivered to the patient.(Figure 4)

Figure 4

On review appointment patient is satisfied with the retention, stability and support of the mandibular tooth supported overdenture prosthesis.

III. DISCUSSION

One of the most important oral health indicator is the ability to retain more number of teeth throughout life[4]. Edentulism or complete tooth loss is prevalent worldwide among older people[5]. Earlier studies have shown that edentulism affects the health and the overall quality of life of the elderly[6]. Alveolar bone resorption is considered as a oral disease and undergoes throughout the life in edentulous patients[7]. However complete edentulism affect the quality of life . With

advancements in dental implant science, implant supported prostheses are being increasingly used for treating patients. However, anatomical, medical and financial constraints often prevent patients from opting for the best possible treatment[8]. Implant prostheses cannot fully compensate the loss of periodontal sensory mechanisms that guide and monitor gnathodynamic functions[9]. Hence, Overdentures have been successfully used for rehabilitation of patients with severe tooth wear and/or few remaining teeth as they provide psychological, functional as well as biological advantages to the patients[10]. Retaining natural teeth as root retention aids in preservation of the residual ridge, retention, support and stabilization for the denture base, proprioceptive feedback and psychological benefit to the patient[11,12]. The masticatory performance in patients with overdentures is also higher than the complete denture patients.

The use of overdentures is therefore, a practical alternative that provides a relatively quick, easy and cost-effective solution to the functional and esthetic oral rehabilitation in patients with pronounced dentulism and/or severe wear[13]. Various challenges encountered includes periodontally compromised teeth, presence of undercuts, restoring vertical dimension, satisfy the patient's aesthetic desires, while also fulfilling occlusal and functional parameters that are essential for long-term success[14,15] .

The demerits of over dentures treatment pertain at meticulous oral hygiene in order to prevent caries and periodontal disease around the abutments[16]. The over-denture tends to be bulkier and overcontoured encroachment of inter-occlusal distance is another disadvantage[17].

IV. CONCLUSION

The concept of conventional tooth-retained overdentures is a simple and cost effective treatment than the implant overdentures.When few firm teeth are present in an otherwise compromised dentition, they can be retained and used as abutments for overdenturefabrication. This helps improve the retention and stability of the final prosthesis significantly. It gives the patient the satisfaction of having prosthesis with his natural teeth still present.

REFERENCES

[1]. GPT 9. The glossary of prosthodontic terms, (GPT-9). Journal of Prosthetic Dentistry, 2005, 94.

[2]. Dhir RC. Clinical assessment of overdenture therapy. J Indian Prosthodont Soc 2005;5:187-92.

[3]. Kumar d, quazi ss. Tooth supported overdenture: an innovative approach to manage the overcontouring and encroachment of inter-occlusal distance in a conventional tooth supported over denture prosthesis. Dr. Arunoday kumar1, dr. Rajesh. S. Nongthombam2, dr. Manjula das3, dr. Vijay shekhar4, dr. Sandeep.

[4]. Drashti G, Rajesh S. Tooth supported Overdenture: Imperative treatment modality: Root to basics. Int J Appl Dent Sci. 2019;5:16-21.

[5]. Dodge CA. Prevention of complete denture problems by use of "overdentures". J Prosthet Dent 1973;30:403-11.

[6]. Miller PA. Complete dentures supported by natural teeth. Tex Dent J 1965;83:4-8.

[7]. Preiskel HW. Overdentures made easy: a guide to implant and root supported prostheses, Chicago: Quintessence Publishing Co Inc, 1995.

[8]. Bansal S, Aras MA, Chitre V. Tooth supported overdenture retained with custom attachments: a case report. J Indian Prosthodont Soc 2014;14:283e6.

[9]. Loiselle RJ, Crum RJ, Rooney GE Jr, Stuever CH Jr. The physiologic basis for the overlay denture. J Prosthet Dent 1972;28:4-12.

[10]. Brewer AA, Morrow RM. Overdentures Made Easy. 2nd ed. St. Louis: The C. V. Mosby Co.; 1980.

[11]. Tokuhisa M, Matsushita Y, Koyano K. In vitro study of a mandibular implant overdenture retained with ball, magnet, or bar attachments: comparison of load transfer and denture stability. Int J Prosthodont 2003;16:128e34.

[12]. Manly RS, Pfaffman C, Lathrop DD, Keyser J. Oral sensory thresholds of persons with natural and artificial dentitions. J Dent Res 1952; 31:305-12

[13]. Schwartz IS, Morrow RM. Overdentures. Principles and procedures. Dent Clin North Am. 1996; 40:169-94.

[14]. Allen PF, McKenna G, Creugers N. Prosthodontic care for elderly patients. Dent Update 2011;38:460e2. 5-6, 9-70.

[15]. Renner RP, Gomes BC, Shakun ML, Baer PN, Davis RK, Camp P. Four-year longitudinal study of the periodontal

health status of overdenture patients. J Prosthet Dent 1984;51:593-8.

[16]. Samra RK, Bhide SV, Goyal C, Kaur T. Tooth supported overdenture: a concept overshadowed but not yet forgotten!. Journal of Oral Research and Review. 2015 Jan 1;7(1):16.

[17]. Siadat H, Alikhasi M, Mirfazaelian A, Geramipanah F, Zaery F. Patient satisfaction with implant-retained mandibular overdentures: a retrospectivestudy. Clin Implant Dent Relat Res. 2008;10:93e8.