

**CREATING WONDERS- FLANGELESS DENTURE WITH PRECI-LINE ATTACHMENTS**

**Vikram Panghal<sup>1</sup>, Sangeeta Sunda<sup>2</sup>, Mamta Ghanghas<sup>3</sup>, Ajay Singh<sup>4</sup> and Himanshu Gupta<sup>5</sup>**

<sup>1,3</sup>Department of Dentistry, Civil Hospital, Hisar-125001

<sup>2</sup>Department of Orthodontics, JCD Dental College, Sirsa

<sup>4,5</sup>Department of Prosthodontics, SPPGIDMS, Lucknow

**ARTICLE INFO**

**Article History:**

Received 9<sup>th</sup> March, 2018

Received in revised form 16<sup>th</sup>

April, 2018 Accepted 26<sup>th</sup> May, 2018

Published online 28<sup>th</sup> June, 2018

**Key words:**

Alveolar ridge, copings, precision attachments, flangeless overdenture.

**ABSTRACT**

Overdenture is a preferred treatment modality for elderly patients with few remaining teeth as roots maintained under the denture base preserve the alveolar ridge, provide sensory feedback and improve the stability of the dentures. Also, the use of copings and precision attachments on the residual teeth augments retention of the denture. This clinical report describes innovative procedure of fabricating a tooth supported flangeless overdenture with preci-lined attachments.

Copyright©2018 **Vikram Panghal et al.** This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**INTRODUCTION**

Any procedure that can delay or eliminate future prosthodontic problems comprises preventive prosthodontics and overdenture is an important preventive treatment modality of present times. Overdenture is not a new notion and clinicians have successfully used existing tooth structures or retained roots to assist with complete denture treatment for over a century.<sup>1,2</sup> A complete denture patient undergoes consequences like loss of discrete tooth proprioception, progressive loss of alveolar bone, transfer of all occlusal forces from the teeth to the oral mucosa and the most depressing effect is the loss of patient's self-confidence. An overdenturelags the process of resorption, improves denture foundation area and increases masticatory efficiency. "Perpetual preservation of what remains is more important than the meticulous replacement of what is missing" as stated by Devan still soundsreal. Renner *et al.*, founded in a 4 year longitudinal study that 50% of the roots used as overdenture abutments remained immobile.<sup>3</sup> Overdenture is indicated in patients with few remaining retainable teeth in an arch. It is also preferred in patients with malaligned ridges; requiring single denture; with unfavorable tongue positions, muscle attachments, and high palatal vault, which compromises the stability and retention of the prosthesis and are contraindicated in patients with compromised oral prophylaxis, systemic complications, and inadequate inter-arch distance.<sup>4,5</sup>

**Case report**

A 55-year-old male patient reported to the Department with the chief complaint of difficulty in chewing due to missing teeth. There was no relevant medical history affecting prosthodontic treatment. Intraoral examination revealed resorbedmandibular ridge and maxillary ridge with 13 and 23 present (Fig. 1). The different treatment options available for this patient's maxillary arch were—extraction of the remaining teeth followed by conventional complete denture, implant supported overdenture and tooth supported overdenture.



**Figure 1** Resorbed maxillary ridge with 13 and 23

Because of the need for additional surgery, the longer duration of treatment phase and related expenditure, patient rejected the option of an implant retained prosthesis and a mandibular complete denture and a maxillaryoverdenture with extra coronal attachments were planned. An orthopantomogram (OPG) and diagnostic casts were made.

Wax rims were fabricated on diagnostic casts to determine the approximate vertical dimension of occlusion. Vertical dimension recordings were determined by phonetics and

\*Corresponding author: **Vikram Panghal**

Department of Dentistry, Civil Hospital, Hisar-125001

esthetics. The diagnostic articulation helped in assessing the available inter-arch space and was found to be adequate. Proposed abutment teeth 13 and 23 were prepared on the diagnostic cast, and the ability to accommodate abutment copings and custom ball attachments was assessed.

After which, it was decided to fabricate a mandibular overdenture with male preci-line attachments (to be placed in mouth) with use of female preci-line attachments (to be placed in denture). The treatment plan was presented to the patient and his consent was obtained.

Elective endodontics was carried out with teeth 13 and 23 and they were prepared in a dome-shaped contour and hemi spherically rounded in all dimensions with approximately 3–4 mm projecting just above the gingiva (Fig. 2).



Figure 2 Hemi spherically rounded 13 and 23 in a dome-shaped contour

Post space was prepared and male preci-line attachments were tried in the prepared 13 and 23 (Fig 3).

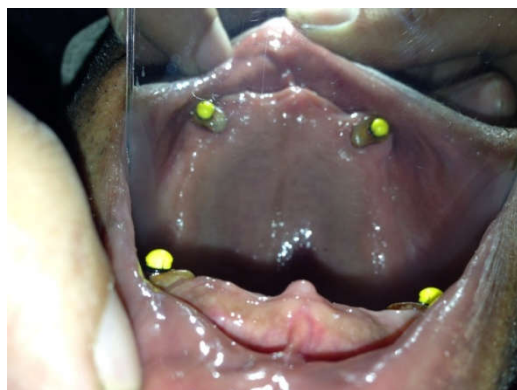


Figure 3 Teeth with preci-line attachments

A primary impression of the upper arch was made with alginate and a special tray was fabricated on the primary cast after block out. Using conventional techniques border moulding was done and secondary impression was made with medium viscosity rubber base material (Aquasil™ Ultra Monophase, DECA Regular Set, Dentsply). Record rims were made and the jaw relationship was recorded. Teeth arrangement was done and a try-in was accomplished. After a satisfactory try-in, the waxed up denture was processed using heat cure acrylic. Once the denture was ready, vent holes were created in the maxillary denture in the space maintained for the attachments. Female preci-line attachments were placed over the male preci-line attachments and were picked up by adding autopolymerizing acrylic resin in the space while maintaining upper and lower dentures in occlusion. The excess self-cure acrylic that came out of the vent holes was trimmed. Repolishing was done in the vent hole region. The maxillary

denture was made flangeless to improve the esthetics of upper anterior region (Fig 4). The denture was delivered and the patient was given instructions about insertion and removal, eating and speaking as well as maintenance of the denture. Periodic follow-up was carried out.



Figure 4 Flangeless Denture

## DISCUSSION

The extent of bone loss related to alveolar process after tooth extraction occurs with individual variation which is impossible to predict at the time of extraction. Miller found that amount of alveolar bone resorption depends upon character of the bone, health of the individual and amount of trauma to which structures are subjected.<sup>6</sup> The easiest way to prevent this bone loss is to avoid extraction of all teeth and keep a few teeth for a tooth or root-supported overdenture which has been shown to markedly reduce the bone loss. In a 5 years longitudinal study Crum and Rooney graphically demonstrated an average loss of 0.6 mm of vertical bone in the anterior part of the mandible of overdenture patients through cephalometric radiographs as opposed to 5.2 mm loss in complete denture patients.<sup>7</sup>

Overdentures enhance biting force, chewing efficiency and further minimize alveolar bone resorption than do conventional complete dentures and negative psychological aspect of patients losing their teeth. While comparing masticatory performance in patients with natural dentition, complete denture and overdenture Rissin *et al.* found that the overdenture patients had a chewing efficiency one-third higher than the complete denture patients.<sup>8</sup>

Various types of attachments are available and have been widely used. Preci-line attachments used in present case had shown improved retention and further flangeless denture design resulted in enhanced esthetics. These days implant supported overdentures has become the norm and therefore tooth supported overdentures have taken a backseat as a result of commercialization of implants.<sup>9</sup> However a tooth supported overdenture is very much at the forefront as the treatment modality incorporating Preventive Prosthodontics concepts to the core and one should not forget basics rather strengthen them by making them a regular part of clinical practice.

## References

1. Fenton AH. The decade of overdentures: 1970–1980. *J Prosthet Dent.* 1998; 79:31-6.
2. Morrow RM, Powell JM, Jameson WS, Jewson CG, Rudd KD. Tooth supported complete dentures: an approach to preventive prosthodontics. *J Prosthet Dent.* 1969; 21:513-22.
3. 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.
4. Rahn A, Heartwell C. Textbook of Complete Dentures. 5<sup>th</sup> ed. Philadelphia: WB Saunders Co.; 1993
  5. Preiskel HW. Overdentures Made Easy: A guide to Implant and root supported prostheses. London, UK: Quintessence Publishing Co.; 1996.
  6. Miller PA. Complete dentures supported by natural teeth. *Tex Dent J* 1965;83:4-8.
  7. Crum RJ, Rooney GE Jr. Alveolar bone loss in overdentures: A 5-year study. *J Prosthet Dent* 1978;40:610-3.
  8. Rissin L, House JE, Manly R, Kapur K. Clinical comparison of masticatory performance and electromyographic activity of patients with complete dentures, overdentures, and natural teeth. *J Prosthet Dent* 1978; 39: 508-11
  9. Williamson RT. Retentive bar overdenture fabrication with preformed castable components: A case report. *Quintessence Int* 1994;25:389-94

**How to cite this article:**

Vikram Panghal *et al* (2018) 'Creating Wonders- Flangeless Denture with Preci-Line Attachments', *International Journal of Current Advanced Research*, 07(6), pp. 13525-13527. DOI: <http://dx.doi.org/10.24327/ijcar.2018.13527.2420>

\*\*\*\*\*