

Tooth Supported Telescopic Over Denture: Case Reports

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ABSTRACT

Background: The over denture prosthesis fabricated over remaining natural teeth is not a new concept in rehabilitation of patients with multiple missing teeth. A telescopic over denture is a prosthesis which consists of a primary coping cemented to prepared abutment tooth and secondary coping attached to denture which fits on the primary coping there by telescopic denture increases the retention and stability of the denture. This paper presents two case reports on prosthodontic rehabilitation of partially edentulous patients with telescopic over denture.

Keywords: Primary coping, secondary coping, telescopic denture, over denture.

INTRODUCTION

Preventive prosthodontics emphasizes the importance of any procedure that can delay or eliminate future prosthodontic problems and overdenture is an important part as the preventive treatment modality. A complete denture patient goes through a sequel of events 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 sequel is the loss of patient's self-confidence. An overdenture delays the process of resorption, improves denture foundation area and increases masticatory efficiency.¹ Over denture are more beneficial as they provide psychological, functional as well as biological advantages for the patient.² This is particularly advantageous in the mandibular arch, where edentulous ridges may resorb at four times greater than the maxillary arch.³ Barker (1861) reported first use of over denture to the American dental convention. The telescopic denture which was supported by natural teeth gained significant popularity during the 1970s and 1980s.⁴

According to GPT 8, over denture is a removable partial or complete denture that covers and rests on one or more remaining natural teeth, roots, and/or dental implants; a dental prosthesis that covers and is partially supported by natural teeth, tooth roots, and/or dental implants. It is also called as overlay denture, overlay prosthesis and superimposed prosthesis.⁵

Indicated in patients with mal related ridge, cleft palate, congenital anomalies, class -3 malocclusion, maxillofacial trauma, compromised situations where retention and stability is compromised. Contraindicated in patients with questionable oral prophylaxis, systemic complications, inadequate inter arch distance.⁶

Advantages:

- preservation of alveolar bone
- Enhanced stability and retention
- Maintenance of vertical dimension.
- Improves proprioception leads to better neuromuscular control, this helps in regulation of biting forces over the denture.

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- Psychological effects on the patient as extraction can be avoided.
- Maintains integrity of the residual ridge.
- Even if there is abutment failure, the abutment can be extracted and the over denture can be relined and used as a conventional complete denture.

Disadvantages

- Nutritional counseling , oral hygiene measures and flouride application should be carried out periodically.
- High incidence of caries and periodontally disease around the over denture abutment.
- Frequent reviews are needed to verify the health of the supported tissues of the over denture abutments.
- More expensive than conventional dentures because-
- Endodontic therapy and coronal restorations may be needed for certain over denture abutments.
- Most cases need a cast metal denture base, as acrylic is weaker.
- Additional designing and laboratory work is needed.
- Cannot be used in case with reduced inter arch space ,bony under cuts adjacent to the abutments,

Improper maintenance of the over denture may lead to periodontal breakdown of the over denture abutment and the patient may lose all his remaining teeth.^{7,8}

Treatment procedure

Includes:

Endodontic treatment, periodontal consideration, caries management, location and distribution of abutment, economy.

Location of abutment teeth

Two teeth in each quadrant present an ideal situation.

1. Cuspids, second premolars or second molars in each quadrant
2. Mandibular cuspids are most often utilized since they are usually the last teeth to be lost

3. Mandibular incisors can be used as over denture abutments if mandibular arch is intact.⁶

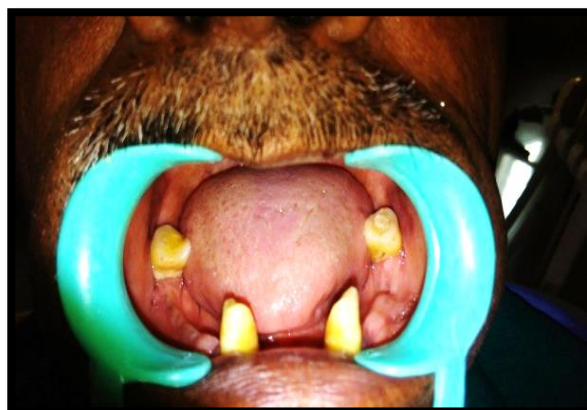


Fig 1: Total tooth present.



Fig 2: Edentulous maxilla.



Fig 3: Tooth preparation done.

CASE REPORT 1

A 53 -years-old male patient reported to the outpatient department of prosthodontics in G.Pulla Reddy Dental College & Hospital, Kurnool with chief complaint of multiple missing teeth and



Fig 4: Primary copings fabricated.



Fig 7: Secondary copings fabricated.



Fig 5: Primary copings cemented.



Fig 8: Final maxillary & mandibular denture.



Fig 6: Seconadry impression recorded.



Fig 9: Post operative view.



Fig 10: Maxillary primary cast.

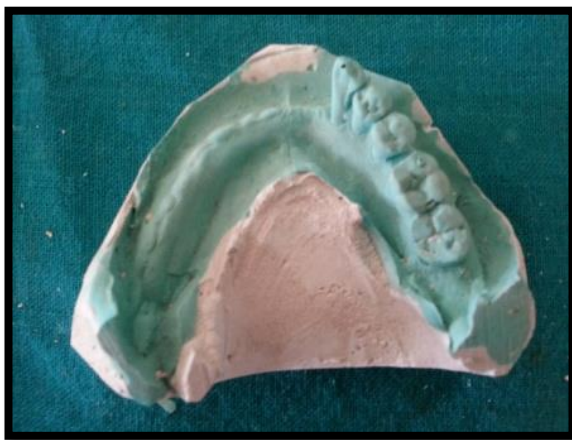


Fig 11: Mandibular primary cast.



Fig 12: Primary copings cemented.

difficulty in chewing the food. Extra oral examination revealed no loss of vertical dimension. Intra oral examination revealed the presence of three maxillary teeth with tooth numbers 11,12,13 with grade-III mobility. In mandibular arch with tooth numbers 33,34,36,37,43,44 and 47, among these 34,36,44 were having grade -III mobility.



Fig 13: Frontal view of cemented primary copings.



Fig 14: Final maxillary denture.



Fig 15: Mandibular partial denture.



Fig 16: Post operative view.

Treatment plan included extraction of teeth with poor prognosis and mandibular telescopic denture and conventional complete denture in maxillary arch (fig-1&2). After the intentional root canal treatment of the abutment teeth 33,37,43,47 they were prepared with chamfer finish line to receive primary copings (fig-3).

The preparation was rounded to minimize the horizontal torque on the roots. Impression of the prepared teeth was made to obtain a cast. Wax pattern was made over the prepared teeth. Metal copings were obtained by casting. Fit of primary copings was checked in patient mouth. Cementation was done in patient mouth (fig-4&5). Final impression with coping in place on their respective abutment was made using a custom tray to obtain a cast on which secondary copings were fabricated (fig-6). The fit of secondary copings over the primary coping was checked. The secondary copings were made with small metal projections which helped in mechanical interlocking of secondary copings with denture base. (fig-7). The secondary copings were placed on the master cast and temporary denture base and occlusal rims were fabricated. The jaw relations were recorded. Teeth arrangement was made and try-in was done.

Maxilla and mandibular complete dentures were processed. The dentures were finished & polished and inserted into the patient mouth (fig-8). The patient was given instructions about insertion and removal as well as maintenance of the denture. The

postoperative appearance is shown in (fig-9). Periodic follow up was carried out.

CASE REPORT 2

A 54 years female patient with three remaining maxillary teeth 14,16,24 and 44,45,46 and 47 in mandibular arch (fig-10&11). Maxillary arch was rehabilitated with telescopic denture and conventional removable denture in mandibular arch. (Fig-12&13) Shows the cemented primary copings on the prepared abutment in the patient mouth. (Fig-14) Shows secondary copings on the tissue surface of the maxillary denture and mandibular removable partial denture (fig-15) is fabricated. (fig-16) Shows the post operative view.

DISCUSSION

Telescopic overdentures was designed for the patients because of its retentive and stabilizing properties. Other treatment options included were extraction of the remaining natural teeth followed by conventional complete denture (or) implant supported overdenture.⁹ The options of implant supported over denture was excluded because of time and cost factors involved. So, planned for tooth supported overdentures. Because extraction of remaining natural teeth would have decreased the available support and proprioception provided by the teeth and their periodontal ligament.^{10,11}

An over denture requires careful assessment of inter occlusal distance there must be sufficient space for roots, metal copings together with an adequate thickness of denture base material under artificial teeth or without jeopardizing with the strength of denture.¹² Due to small height, the use of short coping reduce the possibility of fracture of the over denture base, when compared with higher coping. Although a coping with higher height and attachments, may present greater stability and retention.¹³

Tooth supported over denture is a viable alternative to implant retained prosthesis and offers advantage of bone preservation though retaining the remaining teeth.¹⁴ Base metal alloys (Ni-Cr) was used for the fabrication of copings. Because base metal alloys have low thermal conductivity, ease of fabrication and economic.¹⁵

CONFLICT OF INTEREST

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

CONCLUSION

The root supported overdenture is a better alternative for a treatment option to conventional dentures since the proprioception is maintained and improves stability and retention. It is necessary to have patient awareness about good oral hygiene to maintain the roots so that treatment remains satisfactory for a long time. Overdenture supported by natural teeth is one of the best treatments available for the edentulous condition.

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