

Tooth Supported Overdenture

Dr. Aroma Reji*, Dr. Bibi Fathima*, Dr. Sunil Dhaded**

ABSTRACT

Overdenture is a favoured treatment modality for elderly patients with few remaining teeth. Roots maintained under the denture base preserve the alveolar ridge, provide sensory feedback and improve the stability of the dentures. This clinical report describes a novel method of fabricating a tooth supported overdenture for a medically compromised patient without any attachments.

Introduction

An overdenture is a complete denture supported by both soft tissue and a few remaining natural teeth. The natural teeth have been altered to permit the denture to fit over them. Historically, this technique was an attempt on the part of a few innovative dentists to provide their patients with retention and stability beyond that which could be achieved with a regular complete denture.

The overdenture technique helps preserve the bone in that the remaining natural teeth are used to withstand some of the occlusal forces. Since all the teeth are not extracted, vertical bone height is maintained. Stability of the denture is enhanced by the retained natural teeth. Since the denture will only seat in one exact position and may even be retained by an attachment, denture retention is improved. The periodontal membrane around the remaining teeth improves the denture patient's tactile sense.

Overdenture is one of the most practical measures used in preventive dentistry. In a 4 years study by Renner *et al.*, it was found

that 50% of the roots used as overdenture abutments remained immobile.

Overdentures should not be used as a substitute for a fixed or removable partial denture. They are indicated for the patient normally considered for full-mouth extraction because of caries or advanced periodontal disease. Invariably there are a few teeth that could be used with an overdenture. In the past, if fewer than six teeth remained, a complete denture was indicated. This is no longer true. We can retain teeth for use with an overdenture that are not capable of supporting a removable partial denture.

Need to Use an Overdenture

A complete denture patient goes through a sequel of events like:

- 1) loss of discrete tooth proprioception,
- 2) progressive loss of alveolar bone,
- 3) transfer of all occlusal forces from the teeth to the oral mucosa
- 4) the most depressing sequel is the loss of patient's self-confidence.

An overdenture:

- 1) delays the process of resorption,
- 2) improves denture foundation area and increases masticatory efficiency
- 3) helps preserve the bone in that the remaining natural teeth are used to withstand some of the occlusal forces. Since all the teeth are not extracted, vertical bone height is maintained.
- 4) Stability of the denture is enhanced by the retained natural teeth. Since the denture will only seat in one exact position and may even be retained by an attachment, denture retention is improved.
- 5) The periodontal membrane around the remaining teeth improves the denture patient's tactile sense.

Indications:

- 1) patients with few remaining retainable teeth in an arch.
- 2) patients with malrelated ridge cases;
- 3) patients needing single denture;
- 4) patients with unfavourable tongue positions, muscle attachments, and high palatal vault, which render the stability and retention of the prosthesis difficult

Contraindications:

Patients with questionable oral prophylaxis, systemic complications, and inadequate interarch distance.

CASE REPORT- 1

A 65-year-old male patient reported to the department of Prosthodontics to replace his missing teeth. The patient was partially

edentulous with respect to the upper arch (Kennedy's class 1) with the remaining endodontically treated teeth 11,21 and 22 (fig 1 and 2) with no mobility or periapical pathology on clinical radiographical examination. Medical examination revealed that he's a known diabetic for 20 years and is on medication for the same. Patient was not willing for any long appointments, so the use of copings and attachments were ruled out.

Treatment Plan

The primary impressions were made using irreversible hydrocolloid material and special tray was fabricated on the same.



Fig. 1

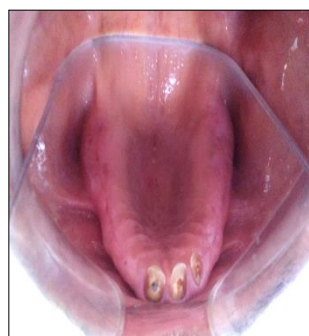


Fig. 2

The border moulding was carried out using a low fusing compound and final impression was made using polyvinyl siloxane (Fig.3). The master cast was obtained (Fig. 4) followed by jaw relation and teeth arrangement. The try in was

carried out to evaluate the occlusion with the lower existing dentition and was later processed.



Fig.3



Fig.4



Post- Operative

In the span of one year the patient was frequently recalled for the denture assessment.



Intra-Oral



Pre-Operative

CASE REPORT – 2

A 62-year-old female reported to the Department of Prosthodontics with a chief complaint of missing teeth and had difficulty in chewing food. She wanted to get her missing teeth replaced. There was no relevant medical history to affect the course of prosthodontic treatment. Extraoral examination revealed no abnormality. Intraoral examination with maxillary arch revealed only 13 and 23 were present showing Kennedy's class 2 modification 1. In mandibular arch, 31,32,41,42 were missing showing Kennedy's class 4 condition (Fig 1). It was planned to construct maxillary tooth supported over denture and mandibular removable partial denture.

Treatment plan:

Post space preparation was done with 13 and 23 with the peso reamers after the endodontic treatment. Post space impression was made, and wax patterns were fabricated with a customized ball attachment (Fig 2). The wax patterns were casted, trimmed and finished and later tried in the patients mouth to check for the

Tooth Supported Overdenture



Fig 1: Intraoral view



Fig 2: Wax patterns

fitting. Later, it was polished and cemented with type I GIC cement (Fig 3).



Fig 3: Customized ball attachments



Fig 4: Alginate Impression



Fig 5: Diagnostic cast



Fig 6: Final Impression

Primary impressions were made with alginate and poured with type I gypsum (Fig 4 and 5). Spacer was attached and custom tray was fabricated with self-cured acrylic resin. Border moulding was done with low fusing compound and final impression was made with regular bodied elastomer (Fig 6). Master cast was prepared by pouring the impression in type IV gypsum. Copings over the master cast was covered with wax and cold mould seal was applied and dentures base was fabricated with self-cured resin. Placement of the wax over the copings prevents the fracture of the master cast during retrieval of the denture base from the cast.

Occlusal rims were fabricated, and jaw relation was recorded and mounted in the articulator. Teeth arrangement was done and try-in was performed in the patient's mouth (Fig 7). Curing of the final denture was done in heat cured acrylic resin using the conventional acrylization procedure and denture insertion was completed.

Tooth Supported Overdenture



Fig 7: Try-in

*Post Graduate student, Department of Prosthodontics, AME Dental College, Raichur

**Professor and HOD, Department of Prosthodontics, AME Dental College, Raichur



Fig 8: Pre-treatment



Fig 9: Post-treatment