

OVER DENTURE WITH INTRARADICULAR ATTACHMENTS : A CASE REPORT

Dr. Niraj Rampal
Principal and HOD

Dr. Pankaj Kaushik
Sr. Lecturer

Dr. Pawah Salil
Professor

Dept. of Prosthodontics, Sudha Rustagi College of Dental Sciences & Hospital, Faridabad

ABSTRACT

The stability and retention of mandibular dentures has always been a compromised situation as compared to the maxillary dentures. Many remedies have been suggested to overcome this inefficiency in dental literature. One such option is overdentures. This case presents a case report of mandibular overdenture with ball and socket attachments for added retention and stability of mandibular denture as well as better proprioception.

INTRODUCTION

In dental literature, various techniques have been mentioned to overcome the problems of retention and stability of mandibular dentures. The most appropriate technique being the overdentures. The overdentures can be tooth supported or implant supported. The tooth supported overdentures have a better proprioception and better psychological considerations for the patient as patients own teeth are used to support the denture and the fear of being edentulous can be managed.

The ideal teeth for overdentures have been documented as the canines and followed by the premolars. The quadrilateral configuration where the two canines and two 2nd premolars are used is considered the best situation for overdentures. The intracoronal attachments have further increased the retentive capacity of the dentures. The various intracoronal attachments can be used as the situation demands but they should be simple to use and should be easily managed by the patients.

ADVANTAGES

- Preservation of alveolar bone- retention of teeth under dentures help preserving the alveolar one as residual ridge resorption is limited by stimulation of bone through the periodontal ligament.
- Psychological benefits to the patient- the psychological trauma to the patients of being edentulous can be reduced as the teeth are retained.
- Improved denture retention, stability and support- these factors are improved as compared to conventional dentures especially where the foundations are weak. Additional retentive aids help to increase these factors further.
- Provides a vertical definite stop for the denture base and limits the excessive loading of the alveolar ridge.
- Physiological acceptances hence better patient co-operation.
- Preservation of masticatory proprioception.
- Fewer post insertion problems.
- Convertibility- the overdenture can be easily converted

to conventional denture if the underlying teeth are lost after some time hence reduces the cost and time as it avoids the repetition of steps involved in fabrication of conventional dentures.

- Harmony of arch form- in cases of compromised positioning of the teeth where harmonious arch form can not be maintained using partial removable denture; overdenture is the treatment of choice.
- Open palate possible- in patients with high palatal vaults or patients with sensitive palates causing gag reflex, open palate can be given as the retention is gained by the attachments or the underlying teeth.
- Fewer traumas to the supporting bone and soft tissue as maximum load is taken up by the underlying teeth.
- Esthetics- improved esthetics can be gained in cases where the natural teeth are in abnormal relation to the arch form or in cases where natural teeth oppose the complete dentures, over dentures can be planned to improve the esthetics.

CASE REPORT

A 65year old male patient was reported with remaining 17, 26, 44, 45, 34, 35 teeth . The patient had treatment partial denture made from a private practitioner and was using them since last 5 years. The patient's chief complaint was looseness of the dentures and difficulty in chewing with ill-fitting dentures. On examination it was found that the 17 and 26 were grade two mobile and carious. Generalized hyperemia of the mucosa was present due to instability of the previous dentures. The medical and systemic history was not relevant. OPG was made to see any underlying pathology and condition of remaining teeth.

The ridge height was good. Tongue size and position was normal with class II lateral throat form. The vertical dimension was reduced due to attrition of denture teeth. The vertical dimension at rest was 9mm more than that at occlusion with dentures.

The treatment plan formulated was extraction of maxillary teeth, root canal treatment with 34, 35, 44 and 45. Maxillary complete denture and mandibular overdenture with dome shaped copings over 35 and 45 and ball and socket attachments with 34 and 44.

PROCEDURE

Diagnostic impressions were made with impression compound for maxillary ridge and alginate for mandibular ridge. Tentative jaw relations were recorded and the diagnostic casts were mounted. The interarch distance was adequate i.e. 30mm for the accommodation of attachments and the copings. The maxillary cast was surveyed for the

undercuts and anterior path of insertion was adopted for anterior undercuts.

Root canal treatments were done for mandibular teeth, prepared for the copings of 2mm in height with relation to 35,45 and for ball and socket attachments with respect to 34,44.

The final impression for copings was made with putty wash technique (indirect technique) and the copings were made by casting in base metal alloy. The copings and the posts with attachments were luted using glass ionomer cement. The ball and socket attachments used were from ESSENTIAL DENTAL SYSTEMS (EDS). The teeth were prepared intracorally to receive the posts with stud attachments using the drill provided with the kit to the desired lengths.

The border molding was done using low fusing compound for both the arches. The maxillary final impression was made with zinc oxide eugenol impression paste and mandibular using medium body addition silicon.

The impressions were beaded and boxed using plaster pumice method, master casts were obtained. The coping and attachment abutments were blocked out using modeling wax and the temporary denture bases were fabricated using self cure acrylic resin (sprinkle on). The orientation jaw relation was done using Hanau spring bow and the casts were mounted. The vertical and horizontal jaw relations were recorded and extra oral tracings were done.

Bilateral balanced occlusion was planned and the jaw relations were confirmed during try in.

The denture was processed in heat cure acrylic using compression molding technique. The attachment abutments were blocked out using dental plaster. Lab remount was done to correct the occlusal errors in balanced occlusion. Once the denture was fabricated and fitted, the nylon grippings were added to the mandibular denture using self cure acrylic resin. The grippings were fixed to the ball attachments; the self cure acrylic resin was mixed in dappen dish and added to the denture. The denture with self cure resin was seated in the patient's mouth. The soft tissues and other areas were coated with petroleum jelly to prevent them from the monomer. Once the resin was set the nylon grippings were picked up in the denture. The excess was trimmed in the attachment area and was polished.

The denture was delivered and instructions were given regarding the use of the denture and maintenance of abutments as well as the attachments. Dental floss was prescribed to clean between the abutments.

Patient was recalled for follow up after 24 hours. The minor pressure areas in the abutment region were relieved and the occlusion was checked again for bilateral balance.

DISCUSSION

Extraction of all natural dentition and replacement with a simple denture is not the most desirable treatment. Preventive Prosthodontics emphasizes the importance of any procedure that can delay or eliminate further Prosthodontic problems. The over denture is a logical

method for the dentist to be used in preventive Prosthodontics.

The squeal after the extraction of all the teeth makes complete dentures progressively less effective. Among these squeales are

- The loss of discrete teeth proprioception- the periodontium of each tooth has the function of proprioception which guides an individual about the biting potential and other sensory outputs required in the oral cavity.
- The progressive loss of alveolar bone- one of the most unknown and undesirable effect after tooth loss is the residual ridge resorption which is multifactorial and can not be avoided.
- The transfer of all occlusal forces from the teeth to the oral mucosa- oral mucosa being a soft structure can not bear the heavy masticatory forces, but in a condition like edentulousness, the soft mucosa is subjected to heavy forces.

From physiologic view point the roots provide not only periodontal ligament support but also

- Directional sensitivity
- Tactile sensitivity to load
- Dimensional discrimination
- Proprioception and salivary secretion

Considering overdentures as an option limits all the above mentioned complications of being edentulous as well as increases the psychological make up of the patient.

Conclusion

To conclude it would not be a repetition to say that over denture is a preventive dentistry concept which has been brought into prosthodontics, and the alveolar bone with its overlying mucosa was never intended to receive the full force of a complete denture. Even though the technique resembles those of complete denture, there are important differences. The prognosis of the restoration is likely to be influenced by numerous factors like-

1. Selection of patient.
2. Treatment planning
3. Preparation of the mouth.
4. Execution of the prosthodontic work and
5. Maintenance, finally it's reasonable to conclude that the retention of a part of the natural dentition affords the overdenture patient again in neuromuscular performance there by having an edge over his edentulous counter part.

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Fig 1: Intraoral View Pre Operative



Fig 2: Intraoral View With Attachments



Fig 3: Final Impression Beaded With Plaster Pumice



Fig 4: Try In Intraoral View



Fig 5: Mandibular Overdenture With Nylon Grippings



Fig 6: Extraoral Pre Treatment

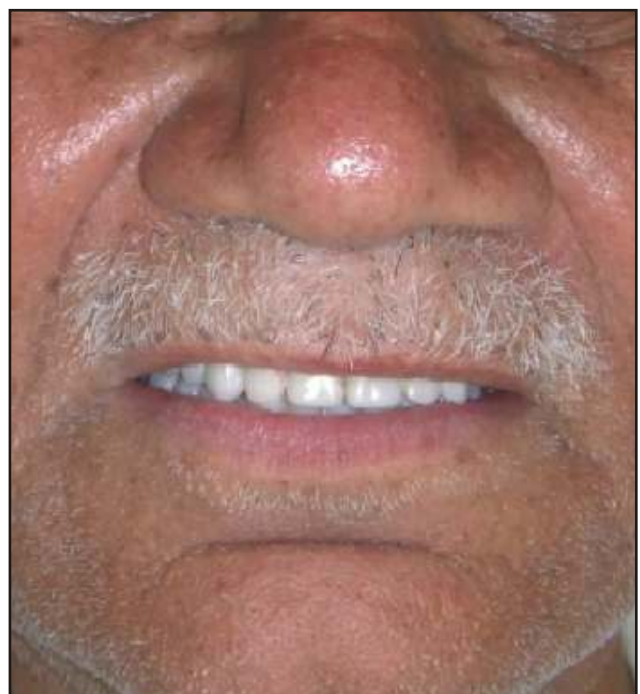


Fig 7: Extraoral With Overdenture