

## Fabrication of an Immediate Denture: A Case Report

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### ABSTRACT

The aim of this clinical report is to describe the use of a patient's fixed prosthesis, where the supporting teeth were having poor prognosis. The patient was convinced for fabricating an interim immediate complete denture followed by fabrication of permanent complete denture. The present procedure was used to replicate the vertical dimension, phonetic and aesthetic of the existing fixed prostheses as part of an immediate denture and a final complete denture.

**Keywords:** immediate complete denture, fixed prosthesis, vertical dimension.

### INTRODUCTION

Immediate denture is any fixed or removable dental prosthesis fabricated for placement, immediately following the removal of a natural dentition. [1] The immediate denture is a type of dental prosthesis, constructed for replacement of the lost dentition, associated structures related to the maxillae and mandible and inserted immediately following removal of the remaining teeth. An immediate denture is a complete denture or partial denture inserted on the same day, immediately following the removal of natural teeth. Generally, literature has described two types of immediate dentures: conventional immediate dentures and interim immediate dentures. In the conventional ones, the prosthesis is fabricated to immediately place following the extraction of natural teeth. It can also be used as the definitive or long-term prosthesis. The other one, interim type, is used for a short time period following tooth extraction. After the healing, the

immediate denture can either be relined or replaced with the newly fabricated final denture. [2] It has been reported that the interim immediate denture shows numerous advantages such as preservation of facial appearance and height, reduction in post-extraction pain, muscular tone, phonetics. [3]

The treatment outcome for an immediate denture is very unpredictable as the prostheses cannot be completely assessed before final insertion. One of the most important issues to be considered while fabricating immediate denture is the difficulty in assessing the vertical dimension at occlusion (VDO) and centric relation after extraction of the posterior teeth. [4]

### Advantages of immediate denture [5]

The main advantages especially from patient perspective are-

1. The patient doesn't have to stay without teeth at any point. They appear to be less apprehensive knowing that a denture will be inserted immediately following extraction of natural teeth, without their social and business activities being affected.
2. Their digestive function stays uninterrupted as the patient is not without any teeth at any point of time. However, they have a limited diet for a short period post insertion.
3. The general appearance of patient is less affected as there is only a minimal change in muscle tone and VDO is also maintained. Masticatory and facial muscles do not change with no unfavourable speech, chewing habits and occurrence of tongue enlargement.

4. Centric relation is easier to record.
5. The ridges are subjected to early functions, so less resorption takes place. As a result, the ridges are preserved and adapted to support a complete denture.
6. Patient recovers from the shock of multiple extractions and at the same time becomes accustomed to immediate dentures. He becomes adjusted to the changes more quickly than with conventional dentures and the healing period is faster and less painful.
7. Immediate denture can be considered as a matrix or bandage with a negative pressure over the surgery site. It controls the hemorrhage, prevents contamination, provides a protective covering over the wound, can be used to maintain medications in place.
8. Artificial teeth can be set in the identical positions which were occupied by the natural teeth. Their size, shape, shade, individual positions and inclinations can be duplicated.

#### **Disadvantages of immediate denture** <sup>[5]</sup>

1. Following insertion, the alveolar bone and soft tissue removal in and extraction sites. As healing proceeds and resorption occurs, the denture also doesn't fit as well. So, it should be relined or remade in 6 months to a year following insertion. This should be informed to the patient prior to the start of the treatment.
2. Treatment with an immediate denture appears to be costly due to increased treatment time, postoperative adjustments, need to relin or remake the denture following healing.
3. No anterior try in can be done. So the esthetics of the denture cannot be evaluated until the insertion.

#### **CASE REPORT**

A 44 year old male patient with a fixed partial prosthesis in maxillary and mandibular arch reported to the Department of Prosthodontics at ITS Dental College. The patient presented no significant medical history and no adverse habits. Clinical

examination and radiographic assessment (Fig.1) revealed a restored mouth with generalized severe chronic periodontitis of the teeth supporting fixed prosthesis that were found to be hopeless. The fixed prosthesis was fabricated at a private clinic 3 years back. In maxilla, the prosthesis was fabricated from 13 to 23 using abutments 13, 12, 23. For mandibular arch, fixed prosthesis was fabricated from 44 to 48 and 43 to 36 with abutment teeth being 43, 42 and 36. The patient was able to remove the prosthesis from 43 to 36 along with the abutment teeth and replace it which resulted in epithelialization of the sockets. The prosthesis fabricated from 44 to 48 had Grade II mobility. The natural teeth present were 15, 17, 18 and 25. Therefore, it was decided to use the patient's current prosthesis for the fabrication of an interim immediate denture. The patient was advised for interim immediate denture in maxillary and mandibular arch post complete extractions. The patient was informed about the treatment plan for extraction an interim immediate maxillary and mandibular denture. The patient wanted rehabilitation followed by a conventional denture.

The diagnostic impressions were made using an irreversible hydrocolloid material and models were obtained using Dental Plaster. Over the diagnostic impressions, special trays were fabricated, onto which border molding was done followed by dual arch impressions (Fig. 2). The final casts obtained using dental stone.

Jaw relation was recorded on the occlusal rims followed by face bow transfer to a semi-adjustable articulator to duplicate the maxillo - mandibular relationship and the casts were mounted (Fig. 4, 5). The original VDO of the patient was maintained throughout the mounting. This was followed by removal of maxillary teeth over the mounted final cast followed by complete occlusal rim fabrication for the maxillary arch so that the original VDO could be maintained (Fig. 6). The same was repeated for the mandibular arch. Thus, at the maintained original VDO of the patient,

final occlusal rims were prepared on which teeth arrangement was done in the conventional manner which was shown to

the patient. It was followed by curing of the denture in a conventional manner.

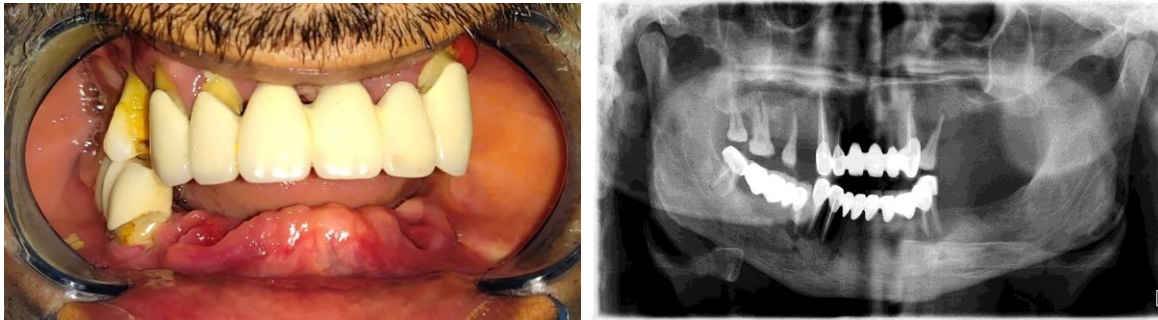


Fig.1- Clinical and radiographic presentation of the patient

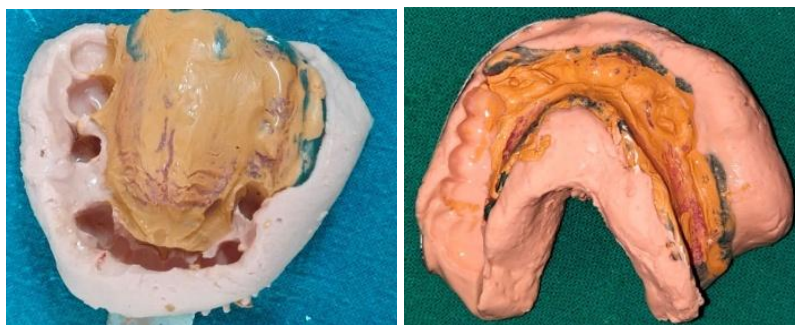


Fig.2-Maxillary and mandibular dual arch impression

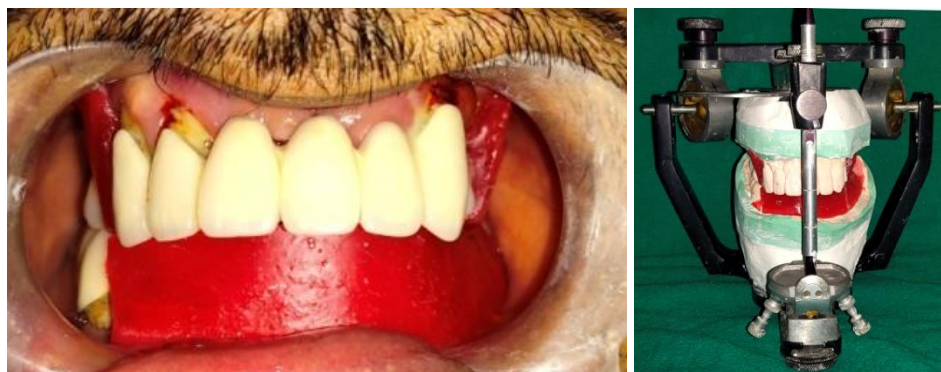


Fig.3-Jaw relation recorded and mounting of casts on semi adjustable articulator

On the day of extractions, firstly all the faulty prosthesis were removed, followed by extraction of the remaining four natural teeth and sutures were placed. Patient was given post extraction instructions (Fig. 7). Once the bleeding had stopped, the insertion of the cured denture was done. The patient was asked to wear the denture for 24 hours without removing, was placed on liquid diet and to report after 24 hours, to check for any ulcer formation and also to check the healing. Patient reported with no such issue. After 48 hours, the denture was relined with a temporary soft liner, so that no ulceration of the soft tissue due to denture occurs. The patient was recalled after 1 week, 3 weeks, 2 months and 4 months on followup.





Fig 4- Try in of the Partial denture Fig 5- Trimming of the teeth in the upper cast at the maintained VDO



Fig 6- Fabrication of occlusal rims at the maintained VDO



Fig 7- Full mouth extractions done followed by immediate denture insertion and relining of denture

After 4 months, patient was interested in full mouth implant placement. On CBCT, the bone width in 1<sup>st</sup> and 4<sup>th</sup> quadrant was found to be insufficient for implant placement. So, the patient was convinced for a conventional denture fabrication after 6 months.

## DISCUSSION

The conventional immediate denture treatment requires a series of appointments for performing the standard procedures; following the extraction of remaining

natural teeth and any necessary adjunct surgery, the denture is placed, tested for excessive pressure in different areas, and adjusted accordingly. [6] Actually, whenever an immediate denture is fabricated, there is generally a period from several weeks to months of edentulism where healing occurs teeth extraction.

Several procedures have been described in the literature for construction of an intermediate or transitional prosthesis, to reduce the time required for its fabrication and to provide a fast and economical

service. Khan et al. (1992) used self polymerizing, tooth-colored acrylic, and visible light-cured resins for fabricating an immediate transitional complete denture in one appointment. [7]

Gilboa et al (2009) performed a procedure by fabricating an immediate complete overdenture where he used natural teeth retaining an interim provisional fixed partial denture until the complete denture was finished. He maintained the posterior occlusion during the healing period and also avoided the trauma of multiple extractions at one visit. [8] Gooya et al. (2013) used the patient's fixed prosthesis for fabricating an interim immediate partial denture in one appointment, by maintaining the VDO. He concluded that the present occlusion, VDO and facial support could be maintained during the healing period in this procedure. [2]

In a procedure performed by Caputi et al, immediate denture was fabricated, preserving as much information as possible from the patient's original situation. This also reduced the number of visits, by delivering the immediate denture after the extraction of teeth and patient received the final new denture without the additional trauma of the surgery. [9]

The immediate denture fabricated with the described technique can be easily used for taking the final impressions (can be used as custom made impression trays), jaw relation, transferring the face bow, for the final denture construction, thus, reducing time, visits and costs. The contraindications to this procedure include the case of complete edentulous patients. [10]

## CONCLUSION

The procedure described for fabrication of immediate denture by replicating the vertical dimension, phonetic

and aesthetic of the existing fixed prostheses of patient can also be used to fabricate final complete denture. In addition, the complete removable prostheses obtained with this procedure can be used as a custom tray for the final denture fabrication

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