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## RESEARCH ARTICLE

### AN ESTHETIC IMMEDIATE DENTURE: A CLINICAL CASE REPORT FOR PROSTHETIC REHABILITATION IN A PERIODONTALLY COMPROMISED PATIENT

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#### ABSTRACT

For the patient facing the loss of all his/her remaining natural teeth, there are three treatment options. One is for the patient to have all remaining teeth extracted and wait for 6–8 weeks for the extraction sites to heal. The conventional complete denture is made following healing, leaving the patient without teeth not only during the healing phase but also during the time required for the fabrication of the conventional complete denture. A second option is to convert an existing removable partial denture into an interim immediate complete denture. A third option is to make a conventional immediate complete denture. The aim of this clinical case report is to describe the procedure involved in the fabrication of interim immediate denture in a patient with hopeless periodontally compromised existing natural dentition.

#### INTRODUCTION

The aesthetic complete denture comprising of anterior teeth and posterior teeth in cases of immediate denture fabrication is always a challenging work for prosthodontists. There is always a problem of matching size, shade and shape of the artificial tooth with those of the natural teeth. An immediate denture is defined as "any removable dental prosthesis which is fabricated for placement immediately, following the removal of a natural tooth/teeth". The immediate complete denture acts as a bandage or splint to help control bleeding and to promote rapid healing. Patients regain adequate function in speech, aesthetics and mastication much sooner compared to conventional complete denture where in the patient has to wait for complete healing of the extraction socket to take place.

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Many patients are not afraid to have teeth removed if they can have them replaced immediately after tooth extraction. They would have a social and familial life without embarrassment. Though immediate dentures are advantageous in terms of regaining back immediate esthetics, phonetics and mastication just after extraction, yet few disadvantages are inevitable. The resorption of the alveolar bone is faster than the changes of healed tissue. These changes require new impressions to keep the denture base adapted to the basal seat. The remounting of the dentures to refine the occlusion is necessary whenever the denture base is altered. There is no opportunity to observe the anterior teeth at the try-in appointment and hence the esthetic result cannot be evaluated until the dentures are inserted. Patients vary greatly in their expectation and demand. To attain the maximum degree of success, the following requirements should be satisfied: Compatibility with the surrounding oral environment, restoration of masticatory efficiency, harmony with the functions of speech, respiration and deglutition, esthetic acceptability and preservation of the remaining tissues.

At the same time it cannot be advocated for the patients suffering from cardiac diseases, endocrine, and blood disturbances, slow healing potential, acute periapical or periodontal diseases, extensive bone loss, or emotional disturbances, mental incapacity, indifferent and unappreciative patients. For the dentist it is a challenge to fulfil all the requirements in immediate denture. To accomplish these requirements, it is mandatory that each patient be analyzed and evaluated on an individual basis and treatment planning can be done accordingly to achieve better aesthetics, phonetics and function.

**Case Report:** A female patient named Padmawati, age 57 years visited A.B.Shetty Memorial Institute of Dental Sciences, Derlakatte, Mangalore with clinical findings of Partially edentulous maxillary and mandibular dental arches with respect 13,16,17,18,25,26,27,28,31,32,34,35,38,41,46, 47,48 and periodontally compromised with grade III mobility with respect to the remaining natural teeth (Fig 1).

She wanted immediate rehabilitation and was particular that she could not remain edentulous for an extended period of time as she was a teacher by profession. She was explained about the treatment procedure of immediate denture at the same time was also explained about its limitations.. Radiographic and clinical examinations were done and an appointment for an immediate denture fabrication was made. Maxillary and mandibular primary impressions were made with irreversible hydrocolloid impression material, diagnostic casts were prepared, interdental undercuts were blocked and custom trays were prepared (Fig 2). Secondary impressions were made with vinyl polysiloxane impression material with custom acrylic trays (Fig 3). Maxillomandibular jaw relation records were made to articulate the casts with the help of Face bow transfer. After Jaw relation record, the proper shade and size of teeth were selected, using the patient existing teeth as a guide (Fig 5). The arrangement of the maxillary and mandibular posterior artificial teeth was done and evaluated in the patient's mouth to confirm maxillo-mandibular relation records.



Fig 1. Preoperative intraoral and extraoral views

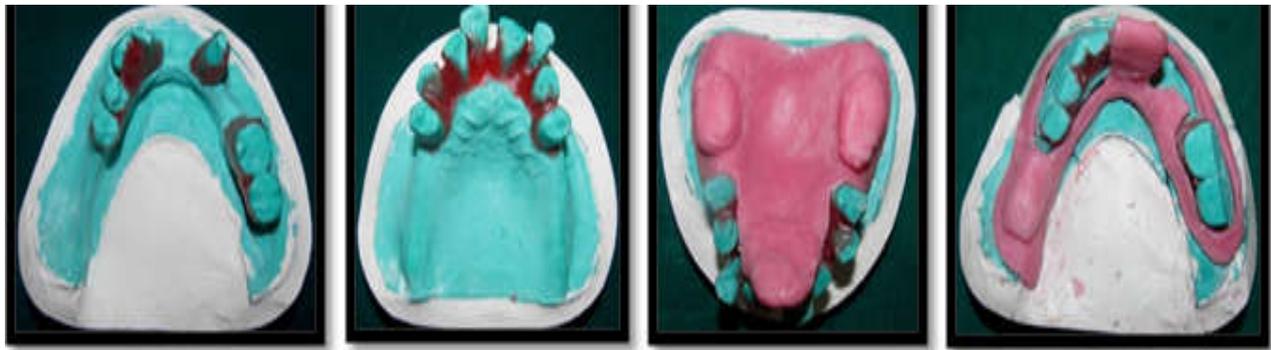


Fig. 2. Diagnostic casts and fabrication of custom tray



Fig . 3. Peripheral tracing with green stick impression compound and secondary impression with vinyl polysiloxane impression material

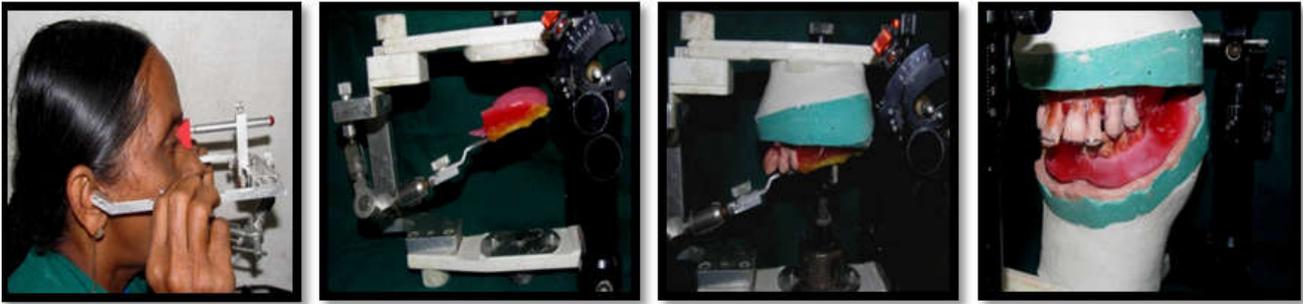


Fig 4. Face bow transfer after jaw relation and mounting of the cast to the semi adjustable articulator



Fig 5. Teeth selection



Fig 6. Maxillary partially edentulous arch with conventional method of posterior occlusal rim fabrication and anterior occlusal rim was fabricated based on visibility of 2-3 mm from vermilion border of upper lip. Whereas Occlusal rim for the Mandibular edentulous arch was modified by creating a window and taking the existing occlusal plane into consideration



Fig 7. Extraction of periodontally compromised teeth and surgical stent used for alveoplasty



Fig 8. Immediate denture placement on the day of extraction (Intra oral view)



Fig 9. Pre-operative and Post-operative view for Immediate complete denture delivery

The wax-up in the maxillary posterior region was performed using the conventional method and in the mandibular partially edentulous arch the occlusal rim was modified by creating a window (Fig. 6). Teeth arrangement Patient was called for posterior teeth try in for maxillary and few mandibular anterior teeth, prior to extraction of the remaining teeth. Jerbi's modification of Kelley's rule of thirds was followed for modification of casts (Fig. 4) 1) First step is to cut away those parts of the crowns of the teeth that are visible i.e. at free marginal gingiva. It must be remembered that a portion of crown still lies beneath gingival. 2) Step two is to trim the cast so that the sites of previously removed crowns are recessed approximately 1mm. With this step, the trimming equals the removal of entire crown of each tooth. 3) Third step is a flat cut across the facial surface of the ridge. Starting the cut at labial depth of recess made in the cast during step two, stone is removed in a continually diminishing amount from this point to the junction of the gingival and middle third areas of facial surface of ridge. The removal of this amount represents the collapse of labial gingival tissues towards the alveolus. 4) Step four is another flat cut across facial portion of the ridge. This cut begins at crest of ridge and extends to the mid width point of cut made in step three. This begins the contouring of labial surface of the ridge. 5) The fifth step is to trim that part of the cast which is lingual to the teeth.

Most casts present a reproduction of continuous roll of gingival tissue that normally lies against the lingual aspects of teeth and it is a landmark for trimming the cast in this area. This roll is completely trimmed away, but care is taken to preserve a part of the cast to represent the incisive papilla in its collapsed position. 6) The last step is to shape and smooth the surfaces of the cast that have been trimmed in the previous steps. The vestibular third of ridge is not trimmed. Following cast modification occlusal rim was fabricated and artificial teeth were arranged taking incisal edge visibility of 1-2mm from the vermilion border of the maxillary lip. The resulting dentures were polished, and patient was called for denture insertion immediately after extraction (fig. 7). Alveoplasty of the residual alveolar ridge was done based on the surgical stent fabricated on the altered cast for immediate denture fabrication. Patient was given instructions not to remove the denture for 24 hrs, and was recalled the next day to make necessary adjustments. The patient was then kept on further regular recall.

## DISCUSSION

Immediate dentures are very satisfying treatment modality for both patient and dentists. The patient gets the benefits of improved confidence, comfort, and continued dental esthetics.

The dentist also finds satisfaction in providing a very acceptable treatment to the patients. Interim immediate dentures are more challenging to make because complete try in for the missing teeth is not possible beforehand. The patient may not be completely satisfied with the final appearance and fit of the denture on the day of insertion. Thus, the patient's cooperation toward the treatment also plays a major role in success. Philosophical patients are the best candidates for this kind of treatment procedure. Thus, it is important to explain the limitations of procedures before starting the treatment. The usual design of conventional complete denture was not suitable for this patient. The patient presented with dissatisfaction with dental esthetics and consequently her smile. Her dental situation was further complicated by generalized chronic periodontitis. In this case, the patient was not convinced for multiple visits for the extraction and wanted all the teeth to be replaced immediately, so we formulated our treatment plan accordingly and decided to go for an interim immediate denture. The interim immediate denture was successful in fulfilling the requirement of the patient. The initial retention and stability were good and also the patient was able to maintain satisfactory oral hygiene and had no complaints regarding esthetic and function. However, this prosthesis was intended for use as an immediate interim denture. Follow-up was done regularly. After complete healing of ridge, conventional complete denture was fabricated for the patient.

### Conclusion

The success of interim immediate complete dentures greatly depends on a correct diagnosis, detailed treatment planning, and precise execution of fabrication procedures. A correct diagnosis and work plan can be made only after gaining insight into the patient's general health and detailed extraoral and intraoral examination.

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