



CASE STUDY

INEXPENSIVE SOLUTION TO A MUTILATED DENTITION: IMMEDIATE DENTURES

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ABSTRACT

An immediate complete denture is a dental prosthesis constructed to replace the lost dentition and associated structures of the maxillae and/or mandible and inserted immediately following removal of the remaining natural teeth. This treatment modality preserves a person from social stigma of being without teeth. But, a major disadvantage is the inability to review teeth arrangement and esthetics before processing and following denture insertion. This clinical report describes the treatment of restoring the anterior teeth of 45-year-old female with partial edentulous upper and lower jaw. A teacher by profession, her prime concern was no period of edentulousness. Patient esthetics is not impaired by giving immediate denture immediately after extraction of his poorly prognosed natural anterior teeth. The critical consideration was given to restore phonation, oral hygiene, followed by esthetics while fabrication of immediate denture.

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INTRODUCTION

A majority of world population still falls under the middle income range, and on a day to day dental practice we come across a common man as our dental patient. With the advancements on health care systems the numbers of geriatric patients seeking dental treatments are also on the rise. As health care professionals it is our prime duty to educate the patients about the best possible treatment plans instead of looking at the monetary benefit that we can gain. Immediate denture is one such treatment modality with many benefits and also cost effective. Like Wilfrid Hall Terrell aptly puts (Willfried Hall Terrell, 2005) it "The subject of immediate restorations is not a new one but it is one which commands much interest and is a phase of prosthetic dentistry which has great possibilities". An immediate complete denture is a restoration fabricated prior to the extraction of a tooth, which is placed in the patient's mouth immediately following the removal of the remaining teeth (Glossary of Prosthodontic terms). This particular treatment protocol is about century and half old. There are many advantages, to cite a few the ID helps in preservation of the alveolar bone, acts as a template and aids in wound healing, patient does not have to go through an edentulous period, he gets a teeth set immediately after extraction of his teeth which helps him retain his social life

(Kralijevic *et al.*, 2001) and cost effective compared to the other expensive treatments like Implant restorations. This case report is one such, where we have rehabilitated a patient (Teacher by profession) with the tissue supported immediate dentures.

CASE REPORT

A 45 year old female patient reported to Department of Prosthodontics, School of Dental sciences, KIMSDU, Karad with a complain of missing posterior teeth, her Upper and Lower anteriors were periodontally compromised with lower canines missing (Fig.1). A teacher by profession esthetics was her main concern, because her profession requires speaking. Conventional treatment for this patient would have been extraction of the incisors followed by healing period for one month, however she did not give consent on extraction with her anterior teeth. The procedure for immediate denture was explained to the patient and the treatment planning was formulated. Wherein it was decided to fabricate an interim immediate denture. Pre-Extraction records made that included facial photo graphs and radiographs.

This article describes and illustrates the procedure for making such a immediate denture.

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1) The primary impression was recorded using irreversible hydrocolloid and casts were poured using type IV dental stone. (Fig 2).



Fig.1. Pre-treatment



Fig.3. Pick-up impression



Fig.2. Primary impression using irreversible hydrocolloid

2) A maxillary and mandibular custom tray was fabricated border molding for maxillary impression using Zinc Oxide Eugenol impression paste followed by pick up impression using alginate. (Fig 3).

3) Temporary record bases were fabricated using auto polymerizing acrylic resin and occlusion rims were constructed. Tentative jaw relations were recorded and a facebow transfer was done. (Fig 4).

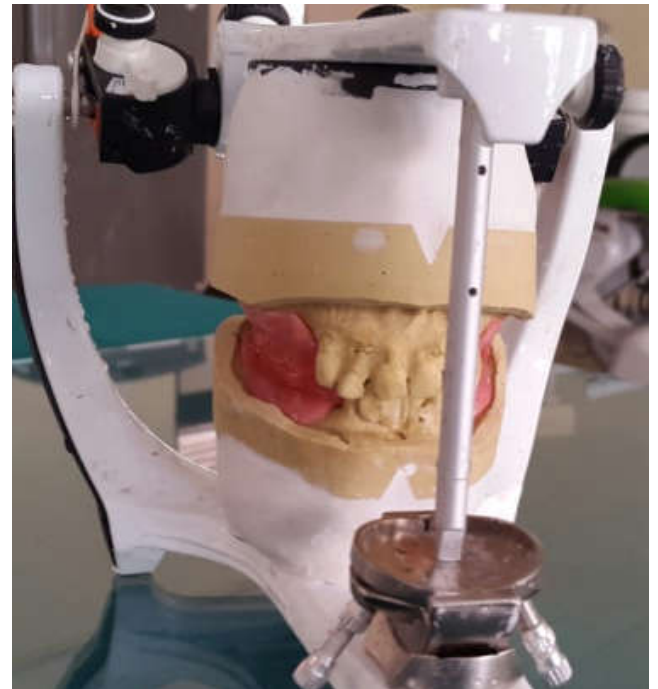


Fig.4. Maxilla-mandibular relation

4) The casts were mounted on a semi-adjustable articulator. The teeth to be extracted were marked on the cast represented by a cross mark using a black marker pen. This was done for easy identification of the teeth to be extracted when referred to an oral surgeon.

5) Posterior try in was done and tentative jaw relation was verified (Fig 5). The teeth to be extracted were scraped on the cast using BP blade. It was scrapped in such a way that 2mm of the cast from the attached gingiva was removed. This was done to compensate for the shrinkage of soft tissues post extraction. All the undercuts and sharp margins were rounded off on the cast and alternative teeth are placed. (Fig 6a 6b).

6) A clear surgical guide (DPI heat cure dental products of India, Mumbai) is used to evaluate the prepared surgical site

was fabricated. Surgical stent was processed using heat cure acrylic resin (DPI heat cure dental products of India, Mumbai) in compression mould technique. Stored in a germicidal solution and thoroughly rinsed prior to insertion. (Fig.7). Remaining teeth were extracted with minimal trauma. Teeth selection was done before extraction keeping in mind the shade, shape and size of the teeth to be extracted, to mimic them as far as possible. Then teeth arrangement was carried out and wax up was done (Fig.8).

of Oral and Maxillo Facial Surgery, School of Dental Sciences, KIMSDU, Karad for extraction of the specified teeth.



Fig.7. Anterior teeth arrangement



Fig.5. Posterior Try-in



Fig.8. Surgical plates



Fig.6a. Alternate teeth removal for cast modification

Extraction of the teeth were done as atraumatically as possible and surgical plates are placed to ensure blanching of tissues and alveoplasty were performed (Fig. 10a 10b). Sutures were placed across the extraction socket. Then the denture was tried in mouth with utmost care to prevent injury to the extraction socket. All the sharp margins were rounded off. Occlusion was analyzed using articulating paper and premature contacts in the denture were removed (Fig 12). Care was taken to maintain the vertical dimension to the original height. Post denture insertion instructions were given to the patient. He was asked not to remove the dentures for 24 hours after the insertion of the prosthesis. This aids in stabilization of the blood clot that was formed. Also need for a soft diet was strictly emphasized for the patient. Then the patient was scheduled for a 24 hour recall appointment. On 24 hour recall check up, patient did not show any discomfort while chewing and speaking. The patient was asked to continue using the prosthesis and was rescheduled after a week for further check up. After one week sutures were removed and healing was found to be satisfactory (Fig. 12a 12b). Patient was happy with the denture and its performance during mastication. Patient was kept on a regular recall schedule to improve the fit of denture upon healing (Fig. 13).



Fig. 6b. Artificial teeth arranged

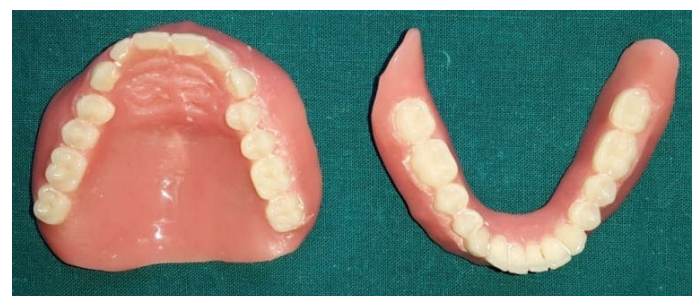


Fig.9. Processed dentures

The denture was processed using heat polymerized acrylic resin (Fig.9) Then the patient was referred to the Department

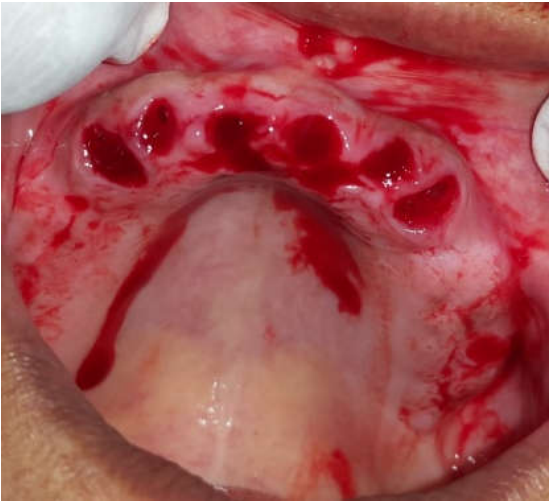


Fig.10a. Total extraction



(b)

Fig.12. 7 Days after denture insertion



Fig.10b. Surgical plate placed to ensure blanching of tissues



Fig.11. Immediate denture insertion



(a)



Fig.13. 2 months after follow-up

DISCUSSION

Success of any treatment procedure depends on various factors like case selection, diagnosis and treatment planning, meticulous surgical protocol, properly contoured and finished prosthesis and eagerness of the patient towards the treatment. Immediate dentures provide a valuable and reliable treatment option when proper case selection, treatment planning and other procedures have been followed carefully. This article highlights the procedures involved in fabrication of interim immediate denture. One of the most important esthetic advantage of immediate dentures is that the patients are spared the inconvenience and distress of being seen in public without teeth. (Woloch, 1988) Patient can continue with his normal activities. Digestive function is not interrupted. General appearance is less affected. Bone resorption of the ridges is minimized. Unfavorable speech and chewing habits are not likely to occur. Centric relation is easier to record. Patient takes less time to adjust to the change, healing is faster and less painful. The immediate denture acts as a matrix for controlling haemorrhage, protects the wound, and prevents contamination. The natural teeth act a guide for the setting of the artificial teeth. Disadvantages: The immediate denture needs to be relined or remade. No anterior try-in done. If the teeth are very mobile undercuts and interproximal are blocked with soft wax to avoid extracting the teeth with the impression. In severe

cases a vacuum-formed resin stent can be utilized as a protective sheath while making the impression the custom tray is placed in the patient's mouth and evaluated (StGeorge *et al.*, 2010). As case selection plays a major role in success of an immediate denture, not all cases are eligible candidates for an immediate denture. This can be identified by initial examination of the patient. The patient must be free from medical conditions which may threaten the success of treatment. The role played by oral surgeon in such a treatment procedure is very important. Good understanding between the prosthodontist and oral surgeon is essential. Teeth extraction must be carried out in a least traumatic way. Errors like fracture of cortical plate, tearing of mucoperiosteal flap must be avoided, which may reduce the rate of success of the treatment. When patients require total extraction and an immediate complete denture, a clear acrylic surgical stent may be fabricated to act as a guide to the surgeon while bone contouring. This will ensure a comfortable wearing of the prosthesis immediately after extraction. Modification of cast at the intended area is very critical in 2 the fabrication of an immediate denture. Standard used three pencil markings placed at a distance of 2mm each to 3 assist in cast modification. (Standard, 1958) Jerbi scribed three markings on the facial surface dividing it into cervical, middle and apical thirds. (Jerbi, 1966) Recently Phoenix and Fleigel proposed spatial modelling technique for cast modification. Though there are numerous techniques proposed, they are aimed at providing space for prosthetic teeth and need for avoiding radical alveoloplasty. (Phoenix and Fleigel, 2008) A properly contoured and finished prosthesis greatly assists in healing of the wound. It will act as a stent or bandage to protect the wound from external trauma and prevents food debris and saliva coming in contact with the wound. Additionally it also protects the blood clot. Any sharp margins on the denture may cause inflammation of the oral mucosa which may cause an additional burden on healing which must be avoided. The cameo surface of the denture must be polished well so that food accumulation will be prevented and oral hygiene can be maintained easily by the patient. Also the denture must not exhibit any harmful forces on the ridge which may cause blanching of the underlying tissues. Pressure indicating pastes can be used in such cases to identify the pressure spots in tissue surface of the denture and relieve them accordingly. The patient's cooperation towards the treatment also plays a major role in success. Philosophical patients are the best candidates for this kind of treatment procedure. (Demer, 1972 Kelly, 1967; Heartwell and Salisbury, 1965) To achieve this, the three stage treatment planning has to be done. Tewary *et al* demonstrated modified method of establishing labial esthetics by using wax strengthened with labial bow made a pronounced enhancement in the patient's facial appearance. (Tewary *et al.*, 2014) In consultation interview phase all the procedures involved in fabrication of an immediate denture must be clearly explained to the patient. He/she must be psychologically counselled and motivated to accept the treatment. Also the expectation of the patient from the treatment must be addressed by the prosthodontist. As tissues heal after extraction there is a tendency of the dentures to lose their retention. Relining is

necessary, which also has to be explained to the patient. Home care instructions for the patient must be verbally given and a written copy must be provided. Patient should be asked to report to the dental office if he/she has any discomfort with the prosthesis and it must be dealt with utmost care and attention. All the above mentioned factors present a great role in success of this therapy. Also it must be kept in mind that this treatment option cannot be radically applied to all patients coming for replacement of missing teeth. When used and applied correctly immediate dentures serve the purpose with utmost success. However, considering the introduction and successful outcome of dental implants, further clinical studies could be needed to evaluate the use of present technique to fabricate a removable implant supported provisional prostheses. A fixed or removable implant-retained denture should be favored as the final treatment of edentulous patients.

Conclusion

Immediate dentures allow patients to continue their social and business activities without being in edentulous state. The patient does not have endured a long healing process without teeth; it also facilitates the transition to the edentulous state. Proper follow up care is essential for the success of an immediate denture. Relining the immediate completing denture with soft resilient silicone materials can improve the fit and reduce the period of the adaptation with the new denture.

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