

Fabrication of Conventional Immediate Denture: A Case Report

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ABSTRACT

Background: An immediate denture is a dental prosthesis fabricated for placement immediately following the removal of the remaining natural tooth/teeth. This paper highlights the types, advantages, problem encountered during the fabrication of immediate denture and its contraindications. The paper also gives an insight into the clinical and laboratory steps starting from preliminary impression, definitive impression, maxillomandibular relationship, cast trimming and denture insertion, in the fabrication of conventional immediate denture through a clinical report.

Keywords: Immediate denture, cast trimming, psychology.

INTRODUCTION

Immediate denture although being a challenging treatment option, is preferred since the psychological impact rendered gives immense satisfaction to the patient. Although immediate denture is an old concept, there is no denying that in this modern era where esthetics and social life play a major role in every individual's life, being without natural teeth has a negative psychological impact. Thus having a replacement of the natural teeth on the same day of its removal, gives an individual the freedom to continue with their social life without any embarrassment. Immediate denture is any fixed or removable dental prosthesis fabricated for placement immediately following the removal of a natural tooth/teeth.¹

Immediate dentures usually are of two types – conventional and interim. Conventional immediate denture (CID) may be a complete or partial removable denture, which is placed immediately following removal of natural teeth, as a definitive prosthesis. Interim immediate denture (IID) is fabricated for purpose of esthetics, mastication or to

accustom the patient to accept the artificial prosthesis until a definitive prosthesis is fabricated.²

Immediate dentures serve the primary purpose of esthetic and psychological comfort to the patient, as the prosthesis is inserted on the day of removal of teeth. Various other advantages are – maintenance of vertical dimension and muscle tone, centric relation recorded more accurately, better postoperative care as the denture itself serves as a bandage for bleeding which results in reduced postoperative pain and normal speech.^{3,4}

Bony undercuts present often pose a problem in the impression procedure. A proper definitive impression is of main concern due to the presence of remaining teeth. Lack of anterior try-in further adds to the difficulty of construction of immediate denture. Considering all the above factors, a proper diagnosis and treatment planning is essential for fabricating immediate complete dentures.⁵ Numerous methods have been described in the literature for the fabrication of conventional and interim immediate dentures.⁶⁻⁹ This article

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Fig 1: Preoperative intraoral.



Fig 2: Maxillary and mandibular definitive impression.

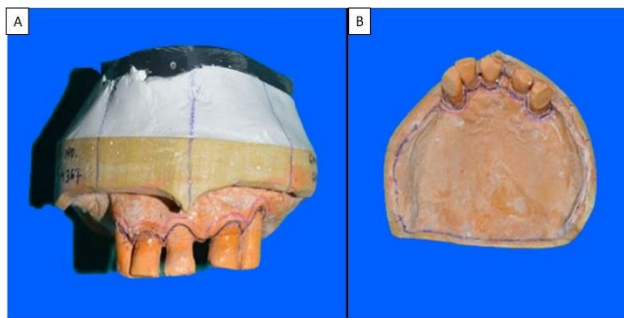


Fig 3: Markings on cast

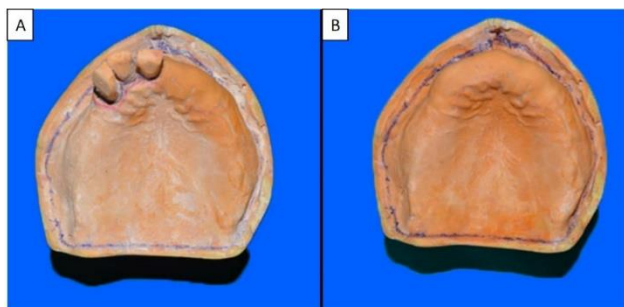


Fig 4: Cast trimming



Fig 5: Teeth arrangement.



Fig 6A: Surgical template seated against the palate.

Fig 6B: Denture Insertion.

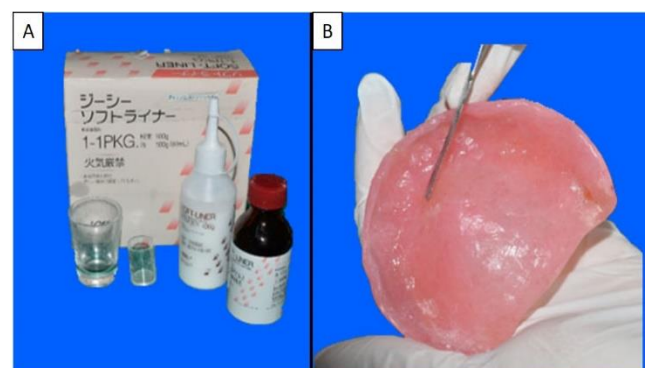


Fig 7: Soft liner placed



Fig 8A: Pretreatment. Fig 8B: Posttreatment.

describes the clinical and laboratory procedures in the fabrication of conventional immediate complete denture.

CASE REPORT

A 65 years old male patient reported to Maharashtra Institute of Dental Science and Research, Latur with chief complain of difficulty in chewing due to broken maxillary removable partial denture and loose mandibular complete denture. History of presenting illness revealed extraction of maxillary posterior teeth 1-1 ½ years back and extraction of mandibular teeth 1-2 years back. Patient was wearing maxillary removable partial denture and mandibular complete denture since a year.

On clinical examination the teeth present were maxillary right central incisor, right lateral incisor, right canine, left lateral incisor and left canine (Fig. 1). The maxillary partial denture was broken in two halves and mandibular denture was loose and wearing of acrylic teeth was seen on both maxillary and mandibular dentures. It was then decided to fabricate an immediate complete denture due to repeated breakage of the maxillary partial denture.

Maxillary preliminary impression was made with irreversible hydrocolloid (Imprint, DPI products, Mumbai) and mandibular preliminary impression was made with modeling plastic impression compound (Y Dents, MDM Corporation, Delhi). Custom trays were fabricated using autopolymerizing acrylic resin. Border molding was done with green stick modeling plastic impression compound (Pinnacle Tracing Sticks; Dental Products of India) and definitive impression for

mandibular arch (Fig. 2) was made with light body condensation silicone impression material (Oranwash L, Zhermack). Maxillary definitive impression (Fig. 2) was made with medium body impression material (Aquasil Ultra Monophase, Dentsply Caulk).

Facebow transfer was done and maxilla-mandibular relation was recorded. Posterior try-in was evaluated after teeth arrangement. Jerbi¹⁰ technique was used for trimming of cast. According to this technique, 3 markings are drawn on the cast, both labially (Fig. 3A) and palatally (Fig. 3B). The first marking is for the gingival margin of the remaining natural teeth. The second one is 2 mm apical to the first marking. The third marking is upto the pocket depth of each tooth. Cast trimming is done upto this third marking, after which the previously trimmed areas are shaped and smoothened. Each tooth was trimmed off the cast one at a time and artificial tooth was replaced.

After the cast trimming (Fig. 4A and 4B), teeth arrangement was completed (Fig. 5). A surgical template was fabricated on the trimmed maxillary cast, with autopolymerizing clear acrylic resin. After removal of all the remaining natural teeth, the surgical template was securely seated against the palate (Fig. 6A) and areas that blanched from pressure were noted. Soft tissue or bone was trimmed as indicated to relieve the excessive pressure spots. Denture insertion was done (Fig. 6B) and postoperative instructions were given. Patient was recalled for follow up the next day and after 7 days. In these follow up appointments, pressure spots were identified and relieved.

After 30 days patient was again recalled and short term soft liner (Soft-liner, GC Corporation Tokyo, Japan) was placed (Fig. 7). The soft liner was replaced after every 10 days up to 3 months. The maxillary denture was relined after complete healing of the anterior region. Pretreatment (Fig. 8A) and posttreatment (Fig. 8B) view of the patient is shown.

DISCUSSION

An immediate complete denture although having limitations in its construction, usually gives a positive outcome if diagnosed and planned properly. Immediate dentures have a great

psychological impact on the patient, since the patient is spared from the edentulous time period, until the healing occurs.¹¹

An accurate impression is essential for fabrication of immediate denture which is complicated by the presence of remaining natural teeth. Care must be taken to prevent distortion of the upper lip during recording of impression. Also undercuts in the anterior region, either of teeth or of labial alveolar ridge may cause under extended impression. Thus it is essential that sufficient length of the vestibule should be recorded.¹²

Although it is not possible to evaluate anterior try-in and esthetics until denture insertion, this problem can be overcome by careful evaluation of position of remaining natural teeth, the existing alveolar bone levels and overlying soft tissue structures. Cast trimming step is of special concern in fabrication of immediate denture. If this step is not evaluated accurately, it will lead to a space between the denture base and the residual ridge and also a discrepancy in occlusion.¹⁰

There is increased number of follow up treatments required by the immediate denture patients. It varies with every individual depending on the rate of change of tissues. According to Swenson, if early success is experienced with the immediate denture, it leads to neglect of follow up protocols. Often it is necessary to either relin the denture or fabricate a new denture after complete healing has occurred.¹³

Immediate dentures are contraindicated in – patients having disease of debilitating nature, patients in whom systemic conditions do not permit multiple extractions, emotionally and mentally disturbed individuals, indifferent type of patients and patients with acute periapical or periodontal pathosis.¹⁴

CONCLUSION

Immediate denture service is satisfactory treatment option to both patients and dentists. The dentist gets an opportunity to reproduce the natural tooth contours and positions, giving the denture a more natural appearance. The biggest advantage of immediate denture is that the artificial replacement of teeth is placed on the day of removal of remaining natural teeth, thus patient avoids the

embarrassment of being without natural teeth and can carry out their social activities without any stigma. Immediate denture service is an interdisciplinary approach requiring efforts and cooperation of the patient, the dentist and the oral surgeon.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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