

“Buccal Connector Immediate Partial Denture”

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Abstract

A 37-year old male patient presented with a complaint of long- standing dissatisfaction with the esthetics of his anterior teeth. He was insistent that he would not consider retaining his unsightly anterior teeth. His smile and self-confidence were affected by his dissatisfaction with his dental esthetics. The unsightly teeth had to be removed and an immediate prosthesis provided. The treatment was complicated by the deep bite which did not permit conventional partial denture service. The treatment carried out utilised a modification of Removable Partial Denture involving Buccal connectors. This modification succeeded in overcoming the limitations quite satisfactorily.

Key words

Buccal Connector, Immediate Denture, Modification, Removable Partial Denture

INTRODUCTION

Immediate denture is defined as “any removable dental prosthesis fabricated for placement immediately following the removal of a natural tooth/teeth”¹

The concept of Immediate dentures is not new. As early as 1860, Richardson² described the use of immediate dentures. Various workers have published about the use of complete dentures immediately following dental extractions.^{3,4,5} In the early years, this treatment modality was considered a luxury and offered only to few patients. According to Seals et al,⁶ other than few exceptions, maxillary anterior teeth should always be replaced with immediate dentures.

Advantages of Immediate Dentures 6

Many advantages of Immediate Dentures have been given-

- Prevent patient embarrassment- at no time is the patient without teeth
- Promote dental health- with the option of immediate dentures, patients are less Reluctant to get diseased anterior extracted.
- Easier to achieve natural esthetics- as there is an opportunity to replicate the natural Dentition closely
- The natural teeth provide a guide for Vertical Dimension. Also there are less changes in the facial musculature.
- Unfavourable speech and chewing habits are less likely to develop.
- Promote better healing- as the immediate dentures act as a stent and protect the Wound. This prevents dislodgement of blood clot, and also reduces bleeding and postextraction pain.
- May decrease the Residual Ridge Resorption, and also promotes better ridge form.
- Prevent collapse of facial musculature

- Patients adapt to the dentures more easily and faster

Disadvantages of Immediate Dentures⁶

- Increased treatment complexity
- Try- in is not possible
- Increased treatment cost- as it is suggested to re-line or re-make the dentures within few months.
- Increased patient visits- due to the follow- up treatments and care required.

Contra-indications of Immediate Dentures⁶

- Patients who have undergone head- and- neck radiotherapy
- Patients with bleeding disorders or impaired wound healing.
- Aged or medically compromised patients.
- Patients with cysts, abscesses or those requiring extensive surgical removal of bone
- Patients with psychological disorders or diminished mental capacities.

Connector design

Most partial dentures are constructed using either palatal or lingual connectors. In rare cases, in some mandibular dentures, labial bars have been used as the major connector of choice. This is a variation of conventional Removable Partial Denture design in which the parts of a prosthesis on one side of the arch are connected with those on the opposite side by a component which passes labial to the remaining natural teeth.

The most common indication for labial bar is the presence of linguallly tipped anterior teeth.

Other indications include severe crowding of anterior teeth, large mandibular tori and severe soft tissue undercuts on the lingual side of the anterior teeth.⁷

Facial connectors may be in the form of either Labial or Buccal Connectors in the form of either bars or

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plates. Labial bar has been used by some workers in maxillofacial prostheses^{8,9,10}. It has been also suggested as an alternative to more conventional designs in cast partial dentures.^{11,12,13,14} A further modification of Labial- bar is the Swing-Lock design.⁷ However, the Buccal- bar or Buccal- plate has rarely, if ever, been used in Removable Partial Dentures.

Usually, these connectors are cast in metal as part of the denture framework. Also, since the prosthesis is not intended for long term use, it was considered prudent to keep the treatment simple and cost-effective by utilising an all- acrylic denture design.

Case Report

The patient, a 37 year old male presented to the Out- Patient Department, with a complaint of dis-satisfaction with the esthetics of his anterior teeth and smile. On examination, it was observed that his maxillary left central incisor was missing. Also, both the first and second molars on both left and right sides of maxilla were missing. There was compromised periodontal health with almost all teeth exhibiting Grade I mobility. The maxillary right central incisor and both the maxillary lateral incisors were seen to have Grade III mobility. The treatment plan was complicated by the presence of 100% deep bite, with the edges of the lower incisors touching the palate in the rugae area. [figs. 1, 2]



The patient had earlier got a removable denture fabricated for the missing central incisor from some other dentist. He reported he could never use this denture as it interfered with his occlusion.

The patient was suggested orthodontic treatment, which he declined. He was insistent upon removal of the mobile and unsightly teeth. He would not accept any treatment plan which would preserve the mobile teeth (viz. Elective pulpectomies and post- and- core to correct the alignment). The patient was open to any form of replacement of the extracted teeth- he was willing to consider removable or fixed replacements. The patient was healthy and there was no significant medical history.

Keeping in mind the patients requirements, it was decided to extract the mal-aligned teeth and provide an Immediate Removable replacement.

Technique

An innovative design was considered because a conventional design was not possible as the lower incisor teeth would strike the denture base of a conventional prosthesis.

Procedure

1. Basic oral prophylaxis was carried out.
2. Impressions were made of the maxillary and mandibular arches using Irreversible hydrocolloid (Zelgan, Dentsply, India)
3. A jaw- relation record was made in Maximum- Intercuspation position using modelling wax (Y-Dents, MDM Corporation, Delhi, India). Double- thickness of wax was used in horse- shoe shape and softened by immersion in warm water. The patient was asked to bite

into the wax till complete closure.

4. The impressions were poured in Type III Dental Stone (Kalstone, Kalabhai, Mumbai, India)
5. The gross undercuts were blocked- out using Type II Dental Plaster. (Neelkanth,)
6. The dental casts were mounted on a non- adjustable articulator. (Jabbar)
7. The maxillary cast was modified with removal of the teeth to be extracted. The removal of stone teeth was done one- at- a- time, and artificial teeth replaced accordingly. This technique is useful in achieving more natural esthetics. The teeth were placed in a more superior plane than that existed naturally.
8. After teeth arrangement, wax- up was completed. Palatally, the wax- up was kept open in the rugae area. The buccal connectors were created in the wax- up.
9. The waxed- up denture was de-mounted, flaked, and processed in heat cure denture base resin (Trevalon, Dentsply, India) in the usual manner.
10. The denture was retrieved, finished and polished and ready for insertion [figs. 3,4]



11. The patient was recalled, and administered Local Anesthesia- using naso-palatine nerve block. This was supplemented with labial infiltrations.
12. The maxillary right central incisor and both the lateral incisors were extracted. [fig. 5] The extractions were done atraumatically and minor labial plate alveoloplasty was done.



13. The finished and polished prosthesis was tried and upon minor adjustment, was suitable for insertion. The prosthesis was checked for high points and the occlusion adjusted accordingly. The patient was satisfied with the esthetics of the prosthesis. [fig. 6]



14. The patient was advised post- extraction precautions and discharged. He was to report after 24 hours and not remove the prosthesis in the meantime.
15. Upon 24- hour recall, the prosthesis was removed, checked and cleaned. The sockets seemed to be healing well and the patient did not have any pain. The patient was further advised about the use of the prosthesis and asked to report after 1 week to plan

the definitive treatment.

Discussion

Immediate removable dentures are a very satisfying treatment modality for both patients and dentists. The patients get the benefit of improved confidence, continued dental esthetics and improved comfort. The dentist finds satisfaction in providing a very acceptable treatment to the patient. The usual design of immediate dentures was not suitable for this patient. The patient presented with dissatisfaction with dental esthetics and consequently, his smile. His dental situation was further complicated by the presence of 100% deep-bite which was traumatising the palate in the rugae region. A unique design of Immediate Partial Denture has planned for this patient. This design of Denture was successful in overcoming the problems of deep bite and lack of space needed for a conventional Partial Denture. The initial retention and stability was good. The patient was able to maintain satisfactory oral hygiene and the patient had no complaints- either esthetic or functional. This design utilised buccal connectors of denture base acrylic. The strength of acrylic is not adequate for making either labial or buccal connectors intended for long-term use. However, this prosthesis was intended for use as an Immediate, Interim Denture. Therefore, it was concluded that this design can be used as a suitable alternative to conventional removable partial denture design in some rare cases. This design is advocated for interim usage only. Long-term use, as in definitive prostheses, would require cast frameworks.

CONCLUSION

Clinical practice in dentistry entails all kinds of services including restorative procedures. Most prosthesis designs are fairly straightforward and require simple application of established procedures and concepts. However, some patients with unique complications and requirements force us to think "out-of-the-box". If we use sound scientific principles and customise them with common sense, we may be able to provide simple solutions to such patients. The case presented here was satisfactorily dealt with by using a minor modification of a tried and tested concept. It can be safely concluded that the design utilised may be used for similar cases.

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