



FABRICATION OF COMPLETE DENTURE IN TWO VISITS USING EXISTING DENTURE -A SIMPLIFIED TECHNIQUE FOR GERIATRIC PATIENT

Dental Science

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ABSTRACT

Complete edentulism often limits patient's ability to masticate and perform other oral functions, resulting in a reduction of oral-health-related quality of life. Complete dentures fabrication requires 4-5 visits to clinic and make up a large part of the treatments done for geriatric patients amongst whom many are functionally dependent on others. Thus travelling for repeated appointments becomes a hindrance. If the number of appointments can be reduced, it will be of great help in successful treatment. This report presents a technique of complete denture construction in two days for an old denture wearer.

KEYWORDS

Two days denture, Old denture wearer, Simplified technique for complete denture, Geriatrics.

Introduction:

Advances in oral disease prevention and increased concern for dental care over the past several decades have resulted in recent generations of people with healthy mouth and teeth. However, there are still many people who lose some or all of their natural teeth. This is usually due to lack of interest on their behalf, time restraint or for various financial reasons.¹

History of the world of dentistry speaks for the complete dentures to be a successful successor for the complete set of natural teeth in most of the patients in terms of function and esthetics. Complete dentures also improve the general well-being of the patients.²

Many complete denture patients may be physically or medically frail, have chronic medical problems, or sometimes homebound with a major limitation in mobility because of some chronic condition.³ While some can travel to dental office independently, others would require that a caregiver helped them. A very few, who are institutionalized, might require a dentist to provide care for them at their place of residence.⁴

A large number of our population resides in the rural areas, and many of these areas are located remotely with inadequate facilities like health, transport services, etc. People from such areas have to seek the nearby urban areas for prosthetic treatments. For such patients due to the inadequate transport facility as well as long distance travelling, a multiple number of appointments becomes a problem and would ask for treatment in a lesser number of clinical appointments.²

A conventional method for fabrication of complete denture usually includes five appointments. There is lack of evidence in the available literature, that a two-step technique has advantages over a single step impression for the long term success of the complete dentures.⁵ In fact, in a couple of clinical trials, it has been shown that a single step impression procedure has given equally good results as the two-step procedure in terms of satisfaction of patients and overall quality of the dentures.^{6,7}

Hence researchers have "simplified" the fabrication of complete dentures by eliminating two stage impression procedures, facebow

transfer and articulator programming.^{8,9} There is no evidence that a more complex fabrication technique including facebow registration results in a better clinical outcome. Balanced occlusion /articulation is for necessary for successful complete denture function. Variations in materials and techniques appear to have only minor influence, if any, on clinical end result. Creating a good relationship between the dentist and the patient is more important than the prosthodontic factors for a successful outcome of a complete denture treatment.¹⁰ In another study, it was found simplified method is the more cost-effective method and that there are no negative consequences that detract from the cost savings.¹¹

This article illustrates clinical and laboratory procedures for making one stage definitive impressions combining with the recording maxillomandibular relations in the same visits for the old denture patient.

Case report:

A 65-year-old female patient reported to Department of Prosthodontics with a complaint of difficulty in mastication and impaired esthetics and loose upper and lower denture.

Patient gave history of repeated debonding and fracture of posterior teeth of a denture which was fabricated 10 yrs. back. (Fig 1)

On examination, the residual ridges were found to be high and well-rounded and ridge relation was class-1 with adequate inter -arch space (Fig 2) The existing dentures were analyzed for loss of vertical dimensions, change in centric relation and a loss of fit of denture. Worn out acrylic teeth and lost lower and upper posterior teeth were evident.

Patient presented no relevant medical history except knee joint pain in left leg cause of trauma. Patient was not able to visit 5 times to Dept. cause of joint pain and more travel distance.

Considering the health of underlying tissue condition, ability of the patient to retrude the mandible to the true centric and most importantly psychological factors, especially, the communication between the dentist and the patient and good cooperation from the patient, case was selected for two-day denture construction.¹¹

Treatment protocol and technique Day one – First appointment

Consultation, history recording and after explaining all treatment protocol, written consent was obtained from patient.

- 1) The existing denture was checked (fig 3.) for border extensions and altered at required areas to make sure 2mm short of functional depth of the sulcus.
- 2) The denture was used as a special tray and border molding and posterior palatal seal recording was carried out with low fusing green stick material to extend or otherwise improve the fit of the denture
- 3) Using these stabilized maxillary and mandibular modular vertical jaw relation is carried out, with the maxillary modular denture, check for desired esthetic position of anterior teeth, any alteration can be done with the help of modelling wax then check for the parallelism of the occlusal plane to ala-tragus line and the interpapillary line with the help of fox guide plane. Midline, Lip lines were marked and lip support was checked (Fig 4,5)
- 4) In the same way, mandibular denture was altered according to the esthetic and functional requirement of the jaw relation.
- 5) The vertical dimensions of occlusion and also other parameters were verified by placing both the dentures in mouth. Centric relation was recorded and the dentures were removed.
- 6) Light body elastomer was used for final impression of both maxilla and mandibular arches in predetermined vertical and centric relation position in closed mouth technique. (fig 4, 5,6) Both upper and lower dentures were removed carefully from patient's mouth.
- 7) All the excess material which flowed on to the external surface of the denture was trimmed with a sharp scalpel blade. (fig 7)
- 8) Impressions were boxed and poured with dental stone.
- 9) The master casts were trimmed, indexed and mounted on the mean value articulator. Note that the master cast and denture were not separated from the impression media till this step. (fig 8)
- 10) A record may be made of mold and shade or new selection may be made.
- 11) Trial denture base with planned position of the anterior teeth, arch form and occlusal plane were made over upper cast by maintaining lower record intact for guidance.
- 12) Arrangement of teeth was completed for try in of waxed up dentures. (fig 9)
- 13) Clinical try-in was done intraorally (fig 10) and evaluation of all parameters as esthetic, phonetics, occlusion to verify vertical and centric relation carried out and after confirmation from patient, we decided to proceed with denture processing at night.

Second day – denture finishing and delivery:

After finishing and polishing denture inserted and delivered as usual. Dentures were checked for any occlusal disharmonies and all related instructions were given to patient. (fig 11, 12)

Limitations of this technique:

Need sufficient spare time to do all steps Good knowledge and technical expertise and skills, hectic for a dental surgeon.

If the existing dentures are under extended and not corrected in final impression and any errors in maintaining centric relations at the time of impression making, errors may compound and the finished denture will be collection of compromise.

Discussion:

Complete edentulism often limits patient's ability to masticate and perform other oral functions, resulting in a reduction of oral-health-related quality of life. Although the two-implant mandibular overdenture may be considered as the minimum standard that should be provided to the patients, it involves mild to highly complex surgical and prosthodontic procedures, with concomitant increase in number of visits and cost of treatment.¹²

Conventional complete dentures present the most realistic treatment option for the majority of edentulous patients worldwide, and researchers have been working towards simplification of complete denture fabrication. Following these researchers, simplification in complete denture fabrication involves reduction in number of impressions (single impression with irreversible hydrocolloid in stock trays), omission of face bow record, anterior try-in, articulator programming, and balanced occlusion.^{8,9}

Although the initial results of these "simplified" procedures are

impressive, long-term clinical data is not available. In this technique, the treatment was completed in two clinical appointments instead of the five conventional appointments. It can be said that the number reduced by 60% effectively a reduction in cost of treatment is possible, without compromising quality of the denture.

Owen CP and McEntee MI¹³ have described a technique CD to provide dentures in four clinical appointments. This technique is based on Appropriate method which was introduced to provide prosthodontics to large masses in limited resource and time.

Duncan JP and Taylor TD¹⁴ compared the conventional method and shortened method for complete denture fabrication and concluded that stock tray impressions made in alginate significantly reduced the visits. The corrective procedures required in conventional and abbreviated technique showed no significant difference in a 3-month follow-up period.

Kawai Y et al⁹, in a randomized control trial showed there to be no major difference in conventional and simplified technique in relation to the satisfaction of the patient or the objective denture quality.

An obvious disadvantage of the technique lies in its applicability to only a population with functional set of dentures, though number of such patients is going to be high due to increased life expectancy.¹⁵ As mentioned previously, the technique can be a boon for geriatric patients with limited resources, those dependent on caregivers for travelling to dental office, and institutionalized elderly people. Long-term clinical trials may be conducted to evaluate efficacy of this modified and simplified denture fabrication procedure.

Conclusion:

Two-day CD technique will help us serve more people in less time. It will also help us to serve that part of the population who are themselves unable to approach us for any treatment. Although the method has a few shortcomings amidst many advantages, with the appropriate and careful procedure and further experience, even the shortcomings can be overtaken, and treatment as close as possible to the conventional technique with added benefits can be provided.

Pictorial presentation of a case:

Fig 1. Patient's previous dentures



Fig 2. Intra-oral view



Fig 3. Evaluation of previous dentures



Fig 4. Orientation relation using fox plane



Fig 5. Final impression with closed mouth



Fig 6. Final impressions



Fig 7. Established jaw relation with final impressions



Fig 8. Mounting on mean value articulator



Fig 9. Teeth arrangement



Fig 10. Try-in



Fig 11. Processed dentures



Fig 12. Denture insertion



Fig 13. Smile with previous denture



Fig 14. Post-operative

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