

A REVIEW : CD FABRICATION WITH TECHNOLOGY DIFFERENT FROM CONVENTIONAL METHOD

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Abstract

The difference in Complete denture fabrication with technology and conventional methods and its evolution over the past few years. Both conventional and newer technology have their own advantages and disadvantages in fabricating complete dentures. The conventional method of fabricating was the oldest and earliest method used for fabrication. Now this method of fabrication of complete dentures has been slowly replaced by technology. Technology involves (CAD/CAM) Computer - aided design / computer - aided manufacture of complete dentures in dentistry. Time management is very less in opting digital denture methods over conventional method as it reduces the time for recording from the patient's, processing time in the labs and also the trial method method in checking the final dentures on the patients. Clinical sitting also plays a major rule in digital denture and conventional method by limiting the number of visits to the dentist and mainly the maintenance of complete dentures differ both in CAD/ CAM and conventional method of fabrication. Many countries are eventually adapting CAD CAM procedures as the technology is available widely around the world. In this review, an overview of complete denture fabrication with technology different from conventional method, necessities in opting technology over conventional method and the advantages and disadvantages of digital dentures and conventional method are reviewed. Overall the need for changing from conventional method to digital technology for fabricating complete dentures.

KEY WORDS: Complete denture, fabrication, CAD/CAM, conventional method, digital dentures

I. Introduction

The lifespan population has increased day to day, the need and the importance for dental treatment [1] for edentulous people also have increased to a greater extent in the world [2]. Increasing the incidence of dental disease, there is a global need for alternative treatment modalities [3]. Despite all the advancements in dentistry and its treatment possibilities and specially for edentulous people [4] and all through their implant assistant complete dentures have reported to be the most efficient and best preferable option for edentulous patient, conventional complete dentures remains as a choice because of its anatomical, physiological and mainly due to its financial restrictions. Conventional method of fabricating complete denture is the Earliest and oldest

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method of fabrication over nearly 80 years ago [5] This meant that was slowly replaced by CAD CAM method of application fabrication for complete denture [6]. The evolution and introduction of complete computer aided design /computer aided manufacturing technology in this field of complete denture fabrication [7] was expected to overcome all the complications that were faced in conventional complete denture fabrication. Digital denture fabrication also holds its own advantages and drawbacks but it is better than conventional method. To compile this review article, nearly 100 articles were searched on google database and from that 34 articles properly related to the title were used.

CONVENTIONAL METHOD- CD FABRICATION :

Complete dentures are one main choice for edentulous patients. The demand for complete dentures will increase completely over the next few decades. Moreover, as said in many articles edentulism is a serious public health problem in these industrialised countries due to population aging and also in developed countries due to poor oral health care of the people [5]. It was nearly after 80 years, the methods and protocols were changed to fabricate complete dentures and gingival retraction should be taken into account [2,8]. The edentulous patients typically have five clinical visits to dental clinics for their complete denture fabrication process [9]. Fabrication method includes preliminary impressions, Final impressions, Recording jaw relations, Trial placements of wax denture and Insertion of complete dentures. [9]

CAD- CAM- CD FABRICATION :

Computer aided design and computer aided manufacture is a very new approach that has emerged for the design and fabrication of complete dentures [10]. The evolution and the introduction of computer aided design and computer aided manufacturing technology into complete dentures fabrication have brought a high level of expectations as in improving the disadvantages that is associated with conventional (traditional) method of complete denture fabrication in prosthodontics [11].

Digital denture systems have been used to describe the entire workflow involved in the fabrication of CAD CAM Technology [5,7]. Digital denture systems are very exclusively designed and manufactured software, with all ideally coordinated materials [12] and CAD CAM are well combined with all the manufacturing strategies and provides results with high quality over conventional method of fabrication and provides for options for clinicians in CAD CAM technology [13].

II. ADVANTAGES - CD FABRICATION :

The traditional (conventional) method of complete denture fabrication which was practised in dentistry over 80 years, have its own advantages when compared to digital denture systems see [14] fabricating complete dentures.

Conventional method of complete dentures fabrication involves the clinical trial placement procedure which is one of the top advantages of [15] conventional method of fabrication of complete dentures [16]. Besides, a lot of advantages in fabrication of complete dentures and as well as in treatment, conventional method is less effective than digital dentures fabrication method.

Articles on complete dentures fabrication have reported some advantages of digital denture making such as modified protocols for easy access, shortened clinical protocols making patients with less clinical visits, less tissue coverage [17], digital Data archive for future references and modification of the dentures for the patients

and thereby enabling easy access[18]accuracy is maintained in digital dentures when compared to conventional method and automated fabrication of denture base. [18,19]

The significant improvements in the quality of digital dentures by CAD CAM for complete denture fabrication enhanced the mechanical and also its physical properties by polymerised PMMA blocks [20],from which all these denture bases for patients are milled.

III.DISADVANTAGES - CD FABRICATION :

PMMA Packs or the blocks were polymerised by injection , under high temperature and pressure , as it prevents the shrinkage [21] . Conventional method of fabrication of complete dentures although holds advantages it does have some disadvantages [22] .Data archives or easy accessibility is not possible in conventional methods, and it also involves an increased number of clinical trials during the procedure and treatment done for the patients.

CAD /CAM TECHNOLOGY,digital dentures on the other hand is cost efficient ,expensive when compared to conventional method [23]although CADCAM technology is available very widely but knowledge about it is very less among the general dental practitioners.In easy terms it transfers the data into desired products.

NECESSITY:

Complete dentures is increasing its demand for edentulous patients around the world especially the elderly people and are commercially needed more for its exponential growth all around the world [24].Dental restoration are made easy going with digital dentures systems of milling and long term [25]success of all ceramics restorations [26] . Complete denture for edentulous patients are very important as it replaces the complete set of natural tooth in the oral cavity that helps in aiding better speech quality ,sound of worded from the mouth and importantly helps in eating food by chewing them properly and effectively [27]. Maintaining a good oral hygiene should always be followed to have a long term disease free oral cavity on wearing a prosthesis [28].

The quality of life as changing the world,the necessity for these dentures not just complete dentures but also removable partial dentures, partial dentures,implants [29,30]and many prostheses [31]and these prostheses [25,32]made should eliminate all post complications like cellulitis and also eliminate the microorganism [33] increasing its demand among the people in the society and also Complete dentures increases the esthetic design of the face [12]. Technology, as increasing ,gives edentulous patients a lot of treatment options apart from complete dentures. Implants[29] play a major role in covering the remaining natural teeth with fixed dental implants and fixed complete dentures ,that includes titanium framework fabricated with it [34]

The comparison of this processing distortion with traditional techniques and digital denture systems (CAD CAM) fabrication techniques,have led to many dimensional changes in the denture base and also in the dimensional retention , stability and support which were dealt with in a few laboratory studies .

IV. CONCLUSION :

Complete denture has both conventional method and digital methods of fabrication for edentulous patients in dentistry.Dentist use both conventional method and digital methods of fabrication based on their abilities and comforting techniques for the patients . Digital denture systems of complete denture processing when compared to Conventional method ,as it is more time saving process.Computer - aided system are very helpful in

transferring all the data's into a well versed future product and storing ,for later use and all references for further changes or any of alterations in complete denture fabrication.

Digital denture systems reduce clinical chair time and the number of visits. Digital dentures have significantly high retention and more favourable clinical outcomes. Computer aided design is a widely used technology in the field of prosthodontics which are slowly growing and picking up knowledge among all the general dental professionals. Dental restoration are made easy going with digital dentures systems of milling and also fabrication of virtual dentures that is milled to exact specifications without the use of conventional stone casting , flashing or processing. Both conventional method and digital methods of fabrication of complete dentures as its demand in prosthodontics.

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AUTHOR CONTRIBUTIONS:

Harini.B , has carried out the study by collecting journal , scientific articles and drafted the manuscript after the necessary correction. Dr. Venkatesh kommi and Dr. Keerthi Sashank aided in conception of the topic ,they have also participated in the study design and have supervised in the preparation of manuscript . Dr. Anitha Roy has guided the study design as well and has also coordinated in the development of the manuscript. All the authors have discussed the study among themselves and contributed to the making of the final manuscript.

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