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Occlusal Adjustments in Complete Denture- A Review

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Abstract

A complete denture is a removable appliance used when all the teeth have been lost. It needs to be prosthetically replaced. Occlusal adjustment procedure or bite adjustment is performed to remove tiny interferences that keep teeth from coming together properly. The maxilla and mandible relationships must be established during the fabrication of complete dentures. Adjustment of occlusion is necessary to account for inherent errors. This research is seen as scoping literature review. In seeking to identify the relevant literature from the past twenty years, we used common databases such as the Pubmed and Google scholar online websites. 37 articles are found relevant to the topic. 18 articles are reviewed for this study. The obtained articles were later read thoroughly and understood. From this study, it is clear that when placing complete dentures, the occlusion should be corrected, as it is important for speaking, mastication. This occlusal adjustment is necessary to eliminate errors apparent at the try- in stage, correction of occlusal disharmony. This provides a balanced contact between the teeth in the jaw. By comparing with other research and reviews, this review gives a detailed explanation about occlusal adjustments. Further studies have to be done on malocclusions.

Keywords: *Complete denture, edentulous, occlusal adjustments, features, adjustments on proximal side.*

Introduction

Complete denture is a removable appliance, used when all teeth have been lost.[1] It is a tissue supported prosthesis [2]. Occlusal contact means that the cusps present on the proximal side of maxilla will contact with the groove of the mandible [3]. Occlusal adjustment is necessary to account for inherent errors caused by processing changes. Importance in this complete denture is the tooth extraction which may be due to dental caries, periodontal diseases and trauma [4]. This complete denture is mostly used by the old aged people. Also this denture is used for the esthetic appearance. It provides comfort to the patient. It helps in the proper functioning of the oral region.[5] It provides esthetics to the people [6]. The main difficulty in placing the complete denture is, the patient with natural opposing dentition and maxillary retention [7].

Compared to previous research, they have evaluated the occlusal contacts in a completed denture using pressure sensitive sheets.[8] They concluded that, pressure sensitive sheet system is able to pressure the occlusal contact at every contacting point. This method was considered as a useful method for the occlusal analysis [9]. Another study was carried out to investigate the occlusal pressure pattern of complete denture wearers. In this study, they used a computer- based device to measure the occlusal pattern. [10]They concluded that peak ratio is very important for the estimation of occlusal adjustments [11].

The main uses of this complete denture is, it replaces all the missing teeth[12]. As it is a removable appliance, it can be easily cleaned and helps to maintain good oral

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hygiene. Also, it provides esthetics to the patients and helps in the mastication process and phonetics. The main aim of this study is to explore detailed information about the complete denture and occlusal adjustments. This review is expected to help people, who want to know about the complete denture and occlusal contact adjustments.

Materials and Method

This research is seen as a scoping literature review. We did not follow a systematic review or meta analysis. In seeking to identify relevant literature from the past 20 years, articles are collected from the Pubmed and Google scholar online websites. [13] [14] [1]. Total number of articles found related to my topic is 37. From this,18 articles are reviewed in this study. [15] [16] [17].

Articles collected are related to the complete dentures, occlusal adjustments, evaluation of occlusal patterns, removable appliances. Articles related to other categories are excluded for this study. The obtained articles were later thoroughly read and understood.

PROCEDURES DONE PREVIOUS TO INSERTION OF COMPLETE DENTURE

Before placing or inserting the complete denture, roentgen cephalometric recordings should be done.[18] The cephalometric analysis was based on electronic measurements of linear and angular morphological variables. Next is the alveolar ridge reduction, which is more rapid during the first 3 months of denture wear and particularly during the post extraction period [19]. The effects on speech sounds caused by alterations of the oral cavity dimensions with complete denture of different morphology were analysed [20]. The effects of these changes on the relative duration of separate sounds in a word and the patient adaptation period were also analysed [21].[22].

CAUSATIVE FACTORS FOR ERRORS IN COMPLETE DENTURE

The problems may be transient and may be essentially disregarded by the patient. [23]Factors which cause problems are 1. Adverse intra- oral anatomical factors 2. Clinical factors 3. Technical factors 4. Patient adaptational factors. Of these four factors the major is patient adaptational factors [24]. Quality of residual edentulous ridges and quality of new complete dentures predict patients to the use of new complete dentures [25]. Complete denture fractures are more common. These features may be due to material factors and clinical or technical factors [26]

IDENTIFICATION OF ERRORS IN COMPLETE DENTURE

Problems in complete denture can be easily identified by incorporating microchips, a radio based tagging transponder into a complete denture [27]. Inter condylar width and inter- dental width serves as a guide for setting up complete denture. With the help of these widths, problems of complete denture can be identified. [28]. In the majority of the patients, the most complaint in wearing complete dentures is because of technical errors in the denture construction [29].

CORRECTION OF ERRORS IN COMPLETE DENTURE

The combination of laboratory and clinical remount procedures with occlusal corrections enhances the patient's comfort [30]. The errors present in the patient are inevitable [31]. Hence for the comfort of patients, laboratory remounting is an important procedure that needs to be followed as a regular step after processing of each and every denture [32]. Nowadays there is an increase in the interest in computer engineered complete dentures [CECDs]. The advantages of this are reduced number of visits, improved fit & retention of electronic archiving [33]. This reference shows that complete dentures fabricated with a normal and convenient method had significantly large occlusal contact areas compared with the other method [34] [35].

Results and Discussion

From the articles reviewed, study has been done on the efficacy of the occlusal analysis system and peak ratio is useful for the evaluation of the occlusal adjustments. Discussion has been done on the occlusal adjustments and the importance of prosthodontic treatments. But the current review involves only the occlusal adjustments. Parameters have been done for the patients with the disorders. Occlusal pressure patterns are observed using pressure sensitive sheets. Other treatments like the facebow transfer fabrication for occlusal splints

of complete denture have been done. This is done on the basis of biomedical rationale. Analysis of occlusal contacts with the accuracy and reliability has been done. Evaluation of occlusal adjustments for the masticatory process. The treatment involving occlusal adjustments would be the denture restoration. Discussion on the discomfort associated with denture wearers, loosening of dentures.

This current review has explored the effect of dentures and the adjustments made for complete dentures. Literature review has been done for the factors related to chewing efficiency in edentulous patients. And problems with the age related adaptations.

TABLE :1: DESCRIPTION OF INCLUDED STUDIES

S.no	AUTHOR	YEAR	KEY FINDINGS	QUALITY
1	Suzuki Tetsuzya, Kumangi, Hiroshi	1997	Efficacy of new occlusal analysis system	Moderate
2	Kenji Okuma, Shiezgo, Hirani	2004	Peak ratio is used for the evaluation of occlusal adjustments.	Moderate
3	J F McCord, A A Grant	2000	Discomfort associated with the dentures, loosening of dentures and the problems of adaptation.	Strong
4	Alex Koper D D S	1997	Discussion on occlusal patterns and the method of fabrication.	Strong
5	Anthony Au, Iven Klienberg	2016	Evaluation of occlusal adjustments by occlusal pressure pattern in complete denture wearers	Strong
6	Iwayo Hayakawa	2004	About the facebow transfer, fabrication of occlusal splints in complete denture.	Moderate
7	Farah Razakhan, Rabia Ali, Aiman Sheikh	2018	Occlusal considerations in the implant therapy.It is a biomedical rationale.	Moderate
8	Yuriko Komagamine, Manabu Kanazawa	2016	Analysis of occlusal contacts in complete denture with more accuracy and reliability .	Strong
9	Wen Quiao Zhou, Die Liu, Tao Chen	2016	Impressions of complete denture fabrication for the masticatory performance.	Moderate
10	Sandile K Mpoungose, Greta Aimee	2016	Complete denture restoration, a temporary treatment in edentulous patients.	Strong

Conclusion

From this review, it was concluded that all the information reviewed would be expected to help clinicians to know about occlusal adjustments in complete denture. All the discomforts associated with the complete dentures are assessed. Future studies has to be done for the malocclusions related to complete denture.

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Conflict of Interest: The author declares that there was no conflict of interest in the present study.

Ethical Clearance: As it is a review article so it is not required.

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