بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / سلوي محمود عقل

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: لا يوجد

Effect of Occlusal Scheme in All on 4 Implant Retained Overdenture on Occlusal Force Analysis Using T-Scan

Thesis

Submitted to ***Faculty of Dentistry Ain Shams University*** *in Partial Fulfilment of the requirement for the M.Sc. Degree in* ***Oral and Maxillofacial Prosthodontics***

By

Ghada Mohamed Elkhnini

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Faculty of Dentistry
Ain Shams University

2022

Supervised by

Prof. Dr. Ahmed Mohamed Osama

Professor and Head of Oral and Maxillofacial Prosthodontics Department
Faculty of Dentistry, Ain Shams University

Assis. Prof. Dr. Yasmine Galal Eldin Thabet

Assistant Professor of Oral and Maxillofacial Prosthodontics
Faculty of Dentistry, Ain Shams University

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Dedication

I am gratefully dedicating this thesis

To. . .Every Person who will given benefit from this study, add more results and help in more knowledge transfer.

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Introduction

Dental implants have been widely used for the rehabilitation of edentulous patients. Providing the patient with a fixed prosthesis was a challenge undertaken, especially in case with highly resorbed ridges, which necessitated rigorous modifying treatments prior to implant placement. Some of these cases need expensive surgical operations, grafts, time, and more cost to the patient, making it more difficult for them to meet their goals.

The all-on-4 approach was developed to rehabilitate with cases with severely resorbed ridges. It permits immediate prosthetic rehabilitation of patients seeking minimum surgery time with a decreased number of implants and without sacrificing the expectations of treatment success, resulting in a habilitation treatment with less morbidity.

Several methods have been used to diagnose, evaluate, and balance occlusal forces over the years. None of them accurately detects simultaneous contact and records both the timing and magnitude of the biting force.

T-scan, a computerised occlusal analysis system, was introduced to aid in the measurement of occlusal biting forces and the acquisition of consistent and relevant occlusal data for occlusal contact evaluation.

This study was performed to determine whether the lingualized or the monoplane occlusal schemes direct higher biting force on All on 4 implant retained overdentures.

Review of Literature

A dental implant is an alloplastic biomaterial that is surgically implanted into the soft or hard tissues of the mouth to provide support and retention of the prosthesis which restores the function and esthetics The advancement in implant technology in terms of materials, designs, and mechanical analysis has pushed implants into the main stream of dental practice today. [1,2]

Many researchers recommend using a dental implant to stabilize terminal abutments, intermediary pier abutments in long-span saddles, add retention to a complete denture, and eliminate free end saddles in partially edentulous cases.[3]

Drawbacks of complete dentures

In many cases, complete dentures lacked retention and stability and patients experienced movement of their mandibular dentures. Patients were dissatisfied with their dentures and their attitude affected the perception of comfort, speech, and the ability to chew when eating certain foods. Bite forces decrease from 200 psi for dentate patients to 50 psi for edentulous patients, thus masticatory efficiency decreases and some patients experienced discomfort or pain when chewing or biting, while altered taste sensation was reported to be a short-term effect in a study. Another study reported that complete denture patients exhibited the lowest scores for taste and texture perception. [3–9]

Treatment options for edentulous arches:

Misch [10] postulated that in implant dentistry, there are generally five different prosthesis choices. Two are removable prosthesis based on the degree of support for the restoration. Three restorations are fixed and differ in the quantity of hard and soft tissue replaced

Implants overdentures

According to Glossary of prosthodontic terms , a removable partial or complete denture that covers and partially supported by natural teeth, tooth roots, and/or dental implants. The patient's phonetics, mental condition, and patient satisfaction are all improved by over dentures. The patient realizes that having an implant-supported overdenture improves his or her capacity to bite a wide range of food, hence improving his or her nutritional condition. [11,12]

There are two types of removable prostheses that are dependent on the restoration's support, retention, and stability. In RP-4 (implant supported over denture) removable prosthesis has no soft tissue support while an RP-5 (implant retained over denture) removable prosthesis has both implant and soft tissue support. An RP-4 prosthesis, implants should be placed in the optimal biomechanical position possible. Four to five implants in the mandible and six to eight implants in the maxilla are necessary for completely implant-supported. [10]

Implants are typically placed in the mandible between the two mental foramens and enough interarch space more than 14 mm is required. [13,14]

An RP-5 (Implant-retained over dentures) may reduce soft tissue coverage, which is significant for new dentures or those with low gagging thresholds, as well as bone resorption. It has better aesthetics, and maintenance. Implant-supported overdentures in the mandible are an effective therapeutic option, especially for patients with substantial bone loss. [15,16]

The survival rate of implants in the front region of the mandible is excellent, with a very low occurrence of postoperative problems. In the anterior mandibular area, implants also exhibit a reduced incidence of ridge reduction. The patient's individual demands and treatment alternatives, as well as their financial circumstances, are considered while selecting the appropriate treatment option selection. [17]

A mandibular overdenture requires fewer implants than a fixed implant prosthesis (typically two to four). Although two implants are sufficient to support mandibular overdentures, adding more implants will increase the retention and stability of the prosthesis. Moreover, employing four implants in combination with a bar attachment enhances the support of a mandibular overdenture significantly.[17, 18,18]

Attachments used in conjunction with implants have been found to improve the retention, stability, and support of overdentures when used in conjunction with implants. Splinting or not splinting the implants, commercially available attachment devices are used to connect implants to overdentures. [19]