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(سورة الطلاق)

Evaluation of different denture base materials on the retention of maxillary complete denture in patients with bilateral prominent maxillary tuberosities

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Submitted By

Mohamed Khairy Mousa

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Faculty of Oral and Dental Medicine
Ain Shams University

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Supervisors

Prof. Dr. Hamdy Abo–Elfotouh

Professor of Removable Prosthodontics

Faculty of Oral and Dental Medicine

Cairo University

Dr. Azza Farahat

Lecturer of Removable Prosthodontics

Faculty of Oral and Dental Medicine

Cairo University

Dr. Amany Ramadan

Researcher of Removable Prosthodontics

Prosthodontic Department

National Research Center

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Abstract

This study was performed to compare the effect of two different denture base materials ***(Conventional heat cured acrylic resin and Flexible acrylic resin "Versacryl")*** on the retention of maxillary complete denture in patients with bilateral prominent maxillary tuberosities. The experiment was carried out on seven completely edentulous patients. Each patient received two dentures, one made of ***conventional heat cured acrylic resin*** and the other was made of ***conventional heat cured acrylic resin with flexible acrylic resin "versacryl"***.

In the group made of ***conventional heat cured acrylic resin***, relief was done at one side only of the dental arch "one maxillary tuberosity" using zinc phosphate cement, to facilitate insertion and removal of the conventional heat cured acrylic resin denture without any difficulty, laceration or patient complain. In the group made of ***flexible acrylic resin "versacryl"*** , no relief or any modification were introduced.

Digital force-meter was used to apply force on a metal hook located in the geometric center of the two maxillary dentures.

Measurements Were taken at delivery, one week and one month after.

This study showed a clear superiority of the retention of the flexible acrylic resin "versacryl" maxillary denture than that of the conventional heat cured acrylic resin in patients with bilateral prominent maxillary tuberosities. This clinical success and superiority are evident from the results of the study.

From this study, it could be concluded that:

1) Retention of the flexible acrylic resin"versacryl" maxillary denture was higher than that of the conventional heat cured acrylic resin.
2) Retention was increased by time in each study group.
3) Complete dentures made of flexible acrylic resin will be significant as a powerful treatment method than conventional denture treatment especially in patients with bilateral prominent maxillary tuberosities or those exhibiting severe undercuts.

Key words: maxillary tuberosities

Introduction

Introduction

Complete denture prosthesis involves the replacement of the lost natural teeth and the associated structures of the maxilla and the mandible. One of the goals that the dentist has to achieve is to produce a denture that is retentive and stable in place which in turn enhances both function and esthetics[1].

Retention was explained as the quality inherent in denture that resists the force of gravity, the adhesiveness of food and the forces associated with the opening of the mouth[2].

Rendell[3]presented the factors affecting complete denture retention as interfacial surface tension, adhesion, cohesion, atmospheric pressure, undercuts and oral and facial musculature which is the action of muscles of the lips, tongue and cheeks on the polished surface of the denture. They can be used in increasing the stability rather than dislodgement of the denture.

There has been continuous search to enhance the physical properties of the denture base materials[4].

Acrylic resin was the most employed material in complete denture bases, it began to be used in 1930 as vulcanite substitution[5].

The reason for this continued use of acrylic resin denture base material was its simplicity in processing and its lower cost. However, its disadvantages such as inadequate tensile and compressive strength and possible allergic reactions lead to the evolution of other modified denture base materials to fulfill patients' satisfaction as well as function and esthetics[6].

Flexible acrylic resin is a flexible biocompatible thermoplastic denture base material with unique physical and esthetic properties. It was introduced since 1950, to overcome too much of the limitations found in conventional acrylic resin, since it offered better denture adaptation as well as denture retention because of its light weight and because of engaging more desirable undercuts. Esthetics was also provided by this material[7].

The question raised in this study, is what denture base material ***(Conventional acrylic resin or Flexible acrylic resin "Versacryl")*** provides more retention in patients with bilateral prominent maxillary tuberosities?

Review of Literature