بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / مني مغربي أحمد

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

ملاحظات: لا يوجد

The Effect of two adhesive promoters on bond strength of ultra-translucent zirconia to two resin cements

Thesis

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تأثير اثنان من محفزي اللصق على قوة ربط الزركونيا الفائقة الشفافية لنوعين من اللاصق الراتينجى

الرسالة مقدمة إلى

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Dedication

This work is dedicated to ….

***My beloved parents**, to whom I owe everything I ever did in my life and will achieve.*

***My sisters** for being always there for me and for their support and encouragement.*

***My friends** for their support and encouragement.*

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Introduction

In recent decades the increasing demand for esthetic restorations made all ceramic restorations an excellent choice for the dentists. They were preferred over the metal ceramic restorations because of their superior esthetics. [1]

Dental ceramics are divided according to microstructure into: Glass-ceramic (feldspathic porcelain, leucite reinforced ceramic and lithium disilicate) and polycrystalline oxide ceramics (Aluminum- oxide and Zirconium oxide).

Zirconium has been used widely in dentistry as a core material for conventional and resin-bonded fixed partial dentures due to their superior mechanical properties in comparison to lithium disilicate-based ceramics. [2]

Current zirconia can be classified into three main groups according to the yttria content. The first group is strong, 3 mole % Y-TZP (Yttrium tetragonal zirconia polycrystal) (mainly tetragonal).The second group is more translucent, 4 mole % Y-TZP. The third group is most translucent, 5 mole % Y-TZP (ultra-translucent). [3]

High strength Zirconia restoration can be cemented to prepared tooth using conventional or self-adhesive resin cements [4], however, resin cements are more favored in some situations where retention is highly required.

Resin bonding to Zirconia ceramic is challenging. Unlike Glass ceramics, where hydrofluoric acid etching and silanization techniques have been ineffective for zirconia- resin bonding. [5] Zirconia is a polycrystalline structure devoid of any glass component and therefore they are categorized as non etchable ceramics.

Surface roughening was done to change the surface properties of Y-TZP through sandblasting to establish micromechanical interlocking between zirconia and resin cement. [6]

Sandblasting is the most preferred surface roughening method for zirconia ceramics. This technique raises its surface energy and wettability. [7] However mechanical adhesion through surface roughening is not sufficient to provide a durable bond between zirconia and resin cement. [8] Therefore, combination between mechanical and chemical adhesion is mandatory .The chemical adhesion is accomplished through innovation of primers and resin cements. [9]

Various zirconia primers have been innovated to enhance the chemical adhesion between the resin cement and dental zirconia. They are easy to apply and do not need costly or complicated apparatus. [10]

Primers or resin cements containing 10-methacryloyloxy- decyl dihydrogen phosphate (MDP) monomer succeeding sandblasting increases the bond strength of zirconia to resin cement.[10][11]MDP is an acidic phosphate monomer, which was initially intended to bond to metal oxides then was used with zirconia. It allows for chemical interaction between the hydroxyl groups of the passive zirconia surface and the phosphate ester group of the MDP. So it can be used for increasing the bond strength between zirconia and resin cement. [12]

Multi-purpose universal primers have been presented to improve the speed, simplify the bonding procedure to tooth structure and lessen the chair side time in the clinical practice. They can be used in self-etch, etch-and rinse, and selective-etch modes. These primers can provide adhesive strengths to zirconia ceramic and precious metal adherents through few