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التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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Bond Strength and Color Stability of Hybrid Ceramic Restoration Repaired with Nanohybrid Composite

Thesis

Submitted to the faculty of dentistry, Ain Shams University in partial fulfillment of the requirements of Master degree in fixed Prosthodontics

By

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Ghada Mohamed Tokhi Fares

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Dedication

I wish to dedicate this work to my mother and my husband who I could never done this without their support and encouragement and sacrifices.

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INTRODUCTION

Early in dental field, metal were used as clinical materials for the restorations of different fixed prosthesis. Although metal-ceramic restorations provide strength, form and function, it usually shows unaesthetic appearance from metal underneath. The increasing aesthetic demand in dentistry has led to the development of many ceramics for their aesthetic capability, biocompatibility, color stability, wear resistance and low thermal conductivity. Currently new ceramic materials are resin-ceramic hybrid materials. These materials combine the properties of ceramics, such as durability and color stability, with properties of composite resins, such as improved flexural properties and low abrasiveness [(1).]

One of the most common hybrid ceramic is Vita Enamic (VE) which is a resin – ceramic hybrid materials, and its composition is approximately 14% composite distributed into a ceramic network (86 wt%). Vita Enamic is suitable for fabricating inlays, onlays, veneers, crowns for anterior and posterior applications and crowns over implants, minimally-invasive restorations such as no-prep veneers and restorations in areas where space is limited. Hybrid ceramic are less brittleness than a pure dental ceramic as well as abrasion properties superior to that of conventional composite materials, resulting in characteristics similar to those of natural dentition [(2) ,(3)]

Fracture of ceramic may result from trauma, improper design, intraceramic defects, and inadequate tooth preparation, and inadequate occlusal adjustment, brittle behavior of pure ceramic and para-functional

habit.[4] Replacement is expensive for these restorations, requiring additional time and causing trauma to tooth structure. Thus, intraoral repair can be considered as an emergency treatment for localized fractures. Furthermore, it represents a viable alternative to remake of a fractured all ceramic restoration [5],[6]

Intraoral repair using a Bis-GMA composite can be an alternative method that offers great benefits due to its superior aesthetics, color stability, and ease of application Various techniques for the preparation of exposed surfaces have also been introduced to improve the bonding qualities between ceramic and resin composites.[4] The ceramic surface may be prepared mechanically, chemically or with a combination of both methods. The most common and simple technique is acid etching by hydrofluoric followed by application of silane coupling agent[7].

The bond strength of repair interface determines the longevity and serviceability of the restoration. This bond integrity and durability depend on the type of repair composite as hybrid composite resins and system of surface treatment of ceramic[8].

Ceramic materials were originally intended for use in anterior restoration where esthetics is the main concern and currently used in posterior region also. In the anterior visible zone, fractured ceramic restoration is considered as an esthetic emergency and requires immediate treatment. Composite resin has become the material of choice for ceramic repair procedure due to their improved mechanical properties, better shade matching and color stability for durable esthetic[9] .

Therefore, this study is conducted to evaluate the color stability and effect of two surface treatments on the bond strength of hybrid ceramic repaired with resin composite.