شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

MONA MAGHRABY

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جامعة عين شمس

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قسم

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

Marginal fit of zirconia-reinforced lithium silicate laminate veneers with different thicknesses using two CAD/CAM Protocols

Thesis

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بسم الله الرحمن الرحيم

قالوا

سبحانك لا علم لنا

إلا ما علمتنا إنك أنت

العليم الحكيم

صدق الله العظيم

سورة البقرة الآية: ٣٢

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INTRODUCTION

Laminate veneers are now widely used as one of the most conservative treatments for esthetic problems such as discoloration, spacing and tooth malposition. The depth of preparation might vary and that depends mainly on the ceramic material used. The more the material could be milled in thin thickness the more the tooth structure will be preserved.

Ceramic materials have been developed rapidly regarding esthetics and mechanical properties to fulfill the patient and clinician needs. One of newly introduced ceramic materials is zirconia-reinforced lithium silicate glass ceramics that is used in fabrication of single unit restorations such as crowns, onlays, inlays, and laminate veneers. This new computer aided design/computer aided manufacturing (CAD/CAM) glass ceramic is enriched with zirconia grains about 10% by weight. The manufacturer claimed that this newly developed generation has enough edge strength and can be milled in thin thickness without loss of marginal adaptation. Another advantage for this material is that it does not require the post-milling firing process, so decreasing the chair-side time for fabrication and decreasing any marginal gaps that could occur due to heating.

Successful porcelain laminate veneers depend on factors such as mechanical strength, bonding properties[1],and marginal and internal fit[2]. Fit is measured by the intimate contact between the veneer and the prepared tooth[3].

Marginal adaptation, is the distance between the finish line the restoration margin, is considered one of the major factors affecting the long term prognosis of ceramic restorations[4].

CAD/CAM technology has become an established fabrication process for dental restorations, especially all ceramic restorations. This technology eliminates the errors that can be found in the conventional methods and hence produce a restoration with better accuracy and marginal fit. Processing devices are different in their milling axes number. Many researchers conducted studies to evaluate if the number of axes would affect the produced restoration fit. The results showed a wide variation, there is also no enough data in the literature regarding this when an ultra-thin laminate veneer is fabricated[5,6].

Few studies have investigated the effect of the fabrication method; conventional methods versus computer-aided design and computer-aided manufacturing (CAD-CAM) that favored conventional methods[7].

A new addition to the lithium ceramic family is lithium silicate ceramic with the same basic components but with the new addition of 7.6% germanium dioxide improving properties