بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / حسام الدين محمد مغربي

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

ملاحظات : لا يوجد

Color Stability and Marginal Adaptation of Ceramic Veneers Cemented using Different Composite Resins

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Dedications

All thanks to Allah for all his blessings,

To my dear husband and my best friend Islam Heiba who had been my source of inspiration and gave me strength when I thought of giving up ,who continually provides his practical and emotional support helping me to be a better version of myself in all life aspects, I am truly thankful for having you in my life

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INTRODUCTION

Aesthetic restorations in a conservative way are very important. For that, there is continuous updating in restorative materials and the used techniques, to provide both the patient and the dentist esthetic requirements in a least invasive or noninvasive way. Porcelain veneers showed durability more than that of composite veneers. Glass ceramics showed general improvement in their mechanical and physical properties, that makes them ideal to be used as dental restorative material. (1)

One of the major challenges for modern dentistry is to achieve the perfect optical properties of natural teeth with artificial materials. In general, the optical behavior of a ceramic restoration is determined by the combination of the underlying tooth structure color, the thickness of the ceramic layers, and the color of the cement. In clinical situations, it is essential to understand how the color of a cemented ceramic restoration may change after aging in the oral cavity. (2)

Resin cements are often used for the cementation of all-ceramic restorations, as they have good esthetic and mechanical properties, low solubility in the oral environment and can be adhesively bonded to dental tissue. Meanwhile, in order to benefit from the physical properties of light-activated composite resins, as well as an improved cost benefit compared to resin cements, some practitioners have been using flowable resin composites for the cementation of ceramic veneers. (3)

Ceramic veneers can be cemented also with composite resins. There is a growing interest in making composite resins with higher filler content less viscous by using pre-heating, without affecting the properties of the polymerized material. Some of the possible advantages of pre-heating

composite resins include better adaptation of the material to the cavity walls, lower potential for the formation of defects at the margins, increase in the degree of conversion and, consequently, better physical, and mechanical properties.(4,5)

The long-term clinical performance of laminate veneers depends on several factors, with marginal adaptation being one of significance. It is critical to establish an acceptable marginal adaptation in laminate veneers because of the inherent limitations of composite resin luting agents, such as relatively high polymerization shrinkage, low resistance to clinical wear, and a high coefficient of thermal expansion.(6)

Artificial accelerated ageing has been used to investigate the stability of dental restorations, including the discoloration of resin cements and all-ceramic restorations. Still, the color stability and marginal fit of cemented veneers using the preheated composite is questionable and needs further investigations.(7)

REVIEW OF LITERATURE

Towards the end of the last century, a climate of non-acceptance of metal alloys in the mouth emerged among some dentists and in the dental product industry and, given the increasing demand for esthetic treatments, these factors have driven the development of new all-ceramic prosthetic rehabilitations.(8)

Due to improvement of adhesive bonding and dental ceramic materials, all-ceramic anterior veneers have become a viable option enabling the clinician to treat esthetic and functional dental conditions by means of a tooth conserving and periodontally friendly method.(9)

The strengthening effect by adhesive luting has been attributed to infiltration of ceramic porosities and sealing of superficial cracks, leading to a better dissipation of mechanical stresses and lower stress concentration at the ceramic structure. Accordingly, there is increased usage of ceramic and composite materials and growth of the CAD/CAM market. This together with advances in dental bonding technology has led to the evolution of porcelain laminate veneers.(8)

Presently, there are many contemporary ceramic materials reinforced with leucite, lithium disilicate, zirconium dioxide, and aluminum oxide, which can be used to produce minimally invasive restorations with thicknesses ranging from 0.1 to 0.7 mm, thus requiring minimum or no tooth structure preparation.(10)

Ceramic veneers

Ceramic veneers have been considered one of the most viable treatment modalities since their introduction in 1983. Aesthetic veneers in ceramic materials demonstrate excellent clinical performance and, as materials and techniques have evolved, veneers have become one of the most predictable, most aesthetic, and least invasive modalities of treatment.(11)

Nowadays, glass-ceramics are broadly used in fabrication of laminate veneers due to the continuous improvements of their mechanical properties associated to better microstructures and new processing methods. The adequate mechanical properties of these materials reflect in the good longevity of such dental restorations.(12,13)

The desire for more durable aesthetic outcomes did not confine to improve the material type only; new preparation designs were introduced to the field of dental veneers. (2)

Different opinions have been reported about superior preparation design over the others. In fact, due to the great variety in the materials, preparations designs and luting cement, favorable approaches to restore teeth with veneers have been controversial.(13)

Although there are different opinions and different results in studies that investigate the influence of preparation design on the survival of the restoration. It seems that incisal overlap preparation provides the best support for the restoration and distributes occlusal forces over a larger surface area.(14, 15)