Microleakage, Shear Bond Strength and Flextural Strength of Two Glass Ionomer Cement Restorations: An In Vitro Study.

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

"وَعَلَّمَكَ مَا لَمْ تَكُنْ تَعْلَمُ وَكَانَ فَضْلُ اللّهِ عَلَيْكَ عَظِيما"

صدَقَ الله العَظِيم

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Dedication

This thesis is dedicated to all those people whom I love and whose images I always carry in my heart especially my best friend Heba; she was the best companion throughout my whole journey and life and will never be forgotten; RIP my dearest friend.

From the depth of my heart I dedicate it to my loving parents and my sister and brother for their lifelong inspiration to be the best, for their endless love and support and their examples taught me that in this world there is nothing impossible that parents and sisters and brothers cannot do for each other future.

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Introduction

Dental caries ranks among the most prevalent diseases of humans and it is considered a public health problem in most countries. [1] In Egypt the prevalence and severity of dental caries among the younger population is high and continues to be a major problem in dentistry. Thus it should receive significant attention as far as its management is concerned. [2]

Despite much effort is done in dental health promotion and caries prevention, dental restorations are still needed thus nowadays every focus is diverted to conserve tooth structure using restorative materials which adhere to tooth structure by minimal intervention and are tooth colored to provide esthetics and strong durable bond between dental biomaterials and tooth substrate. [3]

Due to the forgiving nature of glass ionomer cements; they are considered very useful dental materials; they are tooth colored materials that bond chemically to dental hard tissues and release fluoride for a relatively long period and they are considered ideal material for ART techniques. In addition to their use as a restorative material, they can be applied in the very early stages of caries development; they have therefore been suggested as the materials of choice for the restoration of carious primary teeth in other situations where other materials can't be used. [4]

However, the clinical performance of glass ionomer restorations in primary teeth is disappointing; therefore more clinical studies are required to confirm their efficacy in the restoration of primary teeth.[5]

Thus the current study was designed with the aim to evaluate microleakage, shear bond strength and flextural strength of a recently introduced glass ionomer cement that is claimed by the manufacturer to have superior mechanical properties.