The Effect of Intermediate Layer of Three Flowable Adhesive Materials on Microleakage of Packable Composite Resin Restorations

Thesis

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DEDICATION

To my mother and my father for their constant support and sacrifice

To my wife and my children

To my supervisors whose guidance, encouragement, help and Support made this work possible

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Acknowledgment

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LIST OF ABBREVIATIONS

LDP=Linear Dye Penetration

mm=millimeters

Packable=packable composite

HB=Heavy Body

F.Composite=Flowable Composite

RMGI=Resin Modified Glass Ionomer

F.Compomer=Flowable Compomer

ADA=American Dental Assosiation

CEJ=Cemento Enamel Junction

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Introduction

Introduction

Over the past 50 years many changes have occurred in the development and availability of restorative materials for children. Today the pediatric dental practitioners are confronted with many new restorative materials with an abundance of information from the manufacturer regarding superior properties of the materials.

Concerns about potential mercury toxicity and allergy , impact on environmental pollutions, and aesthetics have decreased the use of amalgam in pediatric dentistry with an increasing need to develop an alternative.

Resin composites were introduced into dental practice as esthetic restorative materials for anterior teeth when they were first developed. However, the growing demand for more esthetic restorations and minimal loss of tooth substance in cavity preparations has made posterior composites an attractive alternative to amalgams.

Aesthetic restorative materials are based on adhesive procedures and their clinical success relies on approaches for polymerization shrinkage control and establishment of predictable adhesion. Composite resin materials shrink upon curing and generate stresses that may threaten marginal integrity and lead to marginal gap formation and microleakage.

Tooth-colored restorations are a highly desirable health service, especially when they can be delivered in a predictable and sensitivity-free manner.

Microleakage may contribute to marginal staining, postoperative sensitivity, secondary caries and pulpal pathology. For that reason, adequate sealing is essential for optimal clinical performance (***Eakle and Ito, 1990).***