

University of Mosul
College of Dentistry



Evaluation of Microleakage and Tensile Strength of Soft Liners to Highly Impact Acrylic Resin

A Thesis Submitted by

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Abstract

Introduction : microleakage and tensile bond strength between the soft lining materials and acrylic denture base (High impact Acryl) are responsible for the life of span of soft denture lining materials.

Aims: this study aims at evaluating the microleakage and tensile strength of four types of soft lining materials(Vertex, Molloplast B, Bony plus and Silicon promedica) with different surface treatment at different period of storage.

Materials and Methods: two hundred and forty specimens of microleakage have been prepared each consists of two parts: acrylic resin denture base part (30mm) diameter and thickness(2mm) of soft liner.

Two hundred and forty specimens of tensile strength have been prepared, each consisted of two part of cylindrical of acrylic (High impact Acryl) highest (20 mm) and diameter (12.65) and between them the soft lining part is (2.5 mm) in thickness.

Soft denture lining materials bounded to three different groups of surface treatment: untreated, acetone, monomer, laser treated to denture base resin. Microleakage specimens underwent two aging procedures: storage at one week, one month without thermocycle, one month with thermocycle inside 2% methylen blue dye in 600 cycles. Tensile strength specimens underwent two aging procedures: storage at one week, one month without thermocycle, one month with thermocycle inside distilled water in 600 cycles.

Results: the results were analyzed by descriptive analysis, Analysis of Variance, Duncan's multiple range test and Student t test and coefficient correlation.

The results showed that microleakage of Vertex and Molloplast_B in one week and in one month with thermocycle are the lowest value from

the other types , in one month with thermocycling the vertex is the lowest of microleakage than others.

Vertex significantly was highest tensile strength than other types of soft liners in all duration of aging and thermocycling..

Conclusion: treating the surface of denture bases with acetone and monomer have the highest value of microleakage from other types of surface treatment in one week ,while in one month without thermocycling and one month with thermocycling, the acetone and monomer have the same value of other types of surface treatment. Aging and thermocycling affected on the physical properties of soft liner increasing the tensile strength of soft denture lining. In tensile strength the surface treatment not affected on the tensile strength



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