بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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MONA MAGHRABY

FRACTURE RESISTANCE OF VITA SUPRINITY VERSUS IPS E.MAX CAD VONLAYS RESTORING PREMOLARS (IN VITRO STUDY)

A thesis submitted to the Faculty of Dentistry at Cairo University in partial fulfillment of the requirements for the degree of Master degree in the Fixed Prosthodontics department.

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B.D.S, Faculty of Oral and Dental Medicine, 2013.

Faculty of Dentistry

Cairo University

2020

We certify that we have read the present work and that in our opinion it is fully adequate in scope and quality as thesis towards the partial fulfillment of Master's degree in the Fixed Prosthodontic department.

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DECLARATION

I, the undersigned, hereby declare that this research thesis is my own original work and that all sources have been accurately reported and acknowledged, and that this document has not been previously, in its entirety or in part, submitted at any university in order to obtain academic qualifications.

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Mostafa El sayed Mohamed Ali Date: ……..….

ABSTRACT

Mostafa El Sayed Mohamed Ali

FRACTURE RESISTANCE OF VITA SUPRINITY VERSUS IPS E.MAX CAD VONLAYS RESTORING PREMOLARS

Under the supervision of Rana Mahmoud Sherif and Noha Adel Elkhodary

Statement of problem: Lithium disilicate ceramic (IPS e.max CAD) has been considered **one of** the strongest glass-ceramics with fracture strength ranging from 300 to 400 MPa **which** provides higher mechanical properties than other types of glass based ceramic material but still limits its use in thin sections in posterior area.

Aim: The aim of the present study was to compare the fracture resistance of lithium disilicate (IPS e.max CAD) vonlays versus VITA suprinity vonlays restoring premolars.

Methodology: A natural tooth representing the first maxillary premolar was prepared according to all ceramic restoration preparation guidelines, it was then duplicated into twenty epoxy resin dies, each one was scanned by 3 shape D500 extra oral scanner and then milled by Sirona MCX5 milling machine using IPS e.max and VITA suprinity CAD blocks producing a total of twenty restorations, the samples were divided into two equal groups, group (I) ten vonlay samples fabricated of IPS e.max CAD blocks and group (V) ten vonlays samples fabricated of VITA suprinity CAD/CAM blocks. Load to fracture was tested.

Result: Statistically significant difference was found between IPS e.max and VITA suprinity where ($p = 0.05 \leq 0.05$). The highest mean value was recorded with VITA suprinity 704.278±139.297**N** while the lowest mean value was recorded with IPS e.max CAD 582.308±113.443 **N**.

Conclusion: Both VITA suprinity and IPS e.max CAD have fracture resistance values higher than the clinically acceptable range and thus can be safely used for premolar area.
Keywords: Vonlay, Onlay, Veneer, Fracture strength, IPS e.max and Vita suprinity.

DEDICATION

To my beloved one’s thanks for the support and strength you had given to me.

To my supervisors Dr Rana and Dr Noha, thanks a lot for your efforts and support to complete my thesis.

To my precious family and friends may Allah bless your lives as you have been the back bone for me in every step in my life.

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