



FRACTURE STRENGTH AND MICROLEAKAGE OF LAMINATE VENEERS

Abd-El Ghani Mirra¹ and Salem El-Mahalawy²

1. Assoc. Prof. Conservative Dentistry, Faculty of Dentistry, Vice Dean, King Abdulaziz University KSA
2. Lecturer Conservative Dentistry, Faculty of Dentistry, Tanta University, Egypt

ABSTRACT

The present investigation was done to measure fracture strength and microleakage of laminate veneers. Thirty maxillary anterior teeth were selected and divided into three equal groups (10 teeth for each design). Design {A}; teeth were prepared with feather edge, Design {B}; teeth prepared with 2 mm incisal reduction without palatal chamfer and, Design {C} 2mm incisal reduction with 1mm palatal chamfer .In-ceram laminate veneers were constructed with three different preparation designs and cemented on its corresponding prepared teeth with resin cement, then the tested specimens were thermocycled for 48 hours then the fracture strength was measured using L loyed testing machine at cross-head speed of 0.5 mm/min. The microleakage were measured using stereomicroscope for fifteen specimens. The results were statistically analysed using ANOVA and student "t" test. It was concluded that highest fracture strength was found in design {B} and microleakage was found to be higher in cervical margin than incisal in the three different designs and highest in palatal margin of design {C} than design {A} and design {B} .

INTRODUCTION

Using laminate veneer tooth structure as possible will preserve healthy tooth structure, facilitate superior periodontal health, facilitate cementation with minimal hydrolytic behavior, preserve the pulp's health, and facilitate easier performance of oral hygiene for the patient ⁽¹⁾.

Several new all-ceramic materials and techniques have been developed to provide many desirable characteristics such as: translucence, fluorescence, biocompatibility, high compressive strength, and coefficient of thermal expansion similar to that of tooth structure ⁽²⁾.

The Desirable properties of the ideal restorative material is the one that have a perfect and complete seal of the restoration's margins. The interface between restoration and dental substrate can result in secondary decay, marginal discoloration, and pulpitis⁽³⁾. Clinically, absence of secure adaptation is usually denoted by microleakage^(4,5).

The clinical result of 546 tetracycline-stained teeth restored with a porcelain laminate veneer system for aesthetic reasons. The color of the veneers was stable and no evident staining was found⁽⁶⁾. The long term survival of anterior porcelain laminate veneers placed with and