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College of Dentistry**



**The Influence of Different Fabrication Techniques
and Preparation Designs on the Marginal
Adaptation of Ceramic Veneers
(An in Vitro Comparative Study)**

A Thesis

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By:

Bashaer Abd El-Sahib Najim

B.D.S.

Supervised by :

Prof. Dr. Inas I. Al-Rawi

B.D.S. M.Sc.

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Abstract

Ceramic veneers represent the treatment of choice in minimally invasive esthetic dentistry; one of the critical factors in their long term success is marginal adaptation. The aim of study was to evaluate the marginal gap of ceramic veneers using two different fabrication techniques and two different designs of preparation.

A typodont maxillary central incisor was used in the preparation from which metal dies were fabricated, which were in turn used to make forty stone dies. The dies were divided into four experimental groups, each group had ten samples: Group A1: prepared with butt- joint incisal reduction and restored with IPS e.max CAD; Group A2: prepared with overlapped incisal reduction and restored with IPS e.max CAD; Group B1: prepared with butt- joint incisal reduction restored with IPS e.max Press, and Group B2: prepared with overlapped incisal reduction and restored with IPS e.max Press. The marginal gap was measured with direct view technique using digital microscope at a magnification of 230X. Measurements were recorded for four surfaces for each sample and the maximum value was taken to represent that sample. Results were analyzed with two-way ANOVA and independent samples t-tests. These tests revealed highly significant effects of both the preparation design and the technique of fabrication on the marginal gap ($p \leq 0.00$), with CAD/ CAM veneers group A1 recorded the least marginal gap and pressing group B2 showed the highest gap values. There was no significant effect of the interaction between the two parameters on the marginal gap. In conclusion, the CAD/CAM veneers with butt joint incisal reduction preparation produced the most accurate margins while the least favorable combination was the pressable ceramic veneers with overlapped incisal reduction.