

EFFECT OF TWO DIFFERENT CEMENT RESIDUE REMOVAL TECHNIQUES ON MARGINAL DISCOLOURATION *IN VITRO*

OBJECTIVE: Margin discolouration is a common problem for veneers in the long term therefore it is essential to understand the optimal cementation protocol to minimise it. The objective of this study was to compare the intensity of discolouration for adhesively cemented veneers when using two cement removal techniques.

MATERIALS AND METHODS: Twenty premolars were prepared similarly: 0.5 mm deep, rounded corners, chamfer finish line, borders in enamel. Ceramic (*IPS e.max CAD*) veneers were made using a scanner *Ceramill Map 600* and mill *Ceramill Motion 2*. The cement gap was 0.02 mm. *PANAVIA V5* (*Kuraray, Noritake*) cement was used. Teeth were divided into two groups. For the first group (n = 10) cement excess was removed with a probe after 3 – 5 seconds of polymerisation continuing to complete polymerisation. For the second group (n = 10) excess was removed with a brush, then completely polymerised. Teeth were stored in alginate gel. Micro-CT was used to detect cementation defects, then teeth were coloured and examined under a stereomicroscope. Discolouration depth was scored 0 (no discolouration) to 5 (discolouration along the entire margin). The difference in the distribution of discolouration between groups was assessed using *Fischer exact* test.

RESULTS: After colouring 55% of the specimens in the probe group exhibited extensive discolouration. In the brush group 90% exhibited slight discolouration ($p = 0.008$). Defect quantity analysis did not show statistically significant connection between the number of defects and the depth of discolouration.

DISCUSSION & CONCLUSIONS: There have been studies on the effect of different bonding techniques on microleakage however different cement removal techniques have not been investigated. In this study cement removal with a brush showed less discolouration than removal with a probe. Future studies should analyse the types of defects more deeply to find the cause determining the difference in discolouration intensities.

KEYWORDS: porcelain veneers, adhesive cementation, discolouration