

PERBEDAAN KEBOCORAN MIKRO PADA RESTORASI TUMPATAN DENGAN BONDING BERBASIS HEMA DAN NON HEMA

(DIFFERENCE ON MICROLEAKAGE OF RESTORATIONS WITH
BONDING BASED HEMA AND NON HEMA)

ABSTRACT

Background. Microleakage is one of the challenging concerns in direct filling restorations especially composite resin. Adherence to the dentin is more complicated than enamel. Therefore there has been development in dentin bonding agent. **Aim.** The aim of this study was to investigate the difference on microleakage of composite restorations bonded with HEMA-based bonding and non HEMA-based bonding on dentin. **Material and methods.** Class I cavities (diameter: 2 mm, depth: 1.5 mm) were prepared on flat occlusal dentin surface of 27 human premolars. Teeth were classified into three groups. Group 1: HEMA-based bonding. Group 2: Non HEMA-based bonding. Group 3: is a control group of composite resin restoration without bonding agent. All cavities were restored with Filtek Z250 composite resin, stored in aquades at 37°C for 24 hours. The teeth were immersed in a 0.5% methylene blue dye solution for 24 hours, and then rinsed in running water, dried, and sectioned longitudinally. The section were assessed for microleakage of dye penetration by two independent evaluators using a digital microscope. Data were collected and statistically analyzed. **Results.** HEMA-based bonding showed no significant difference with non HEMA-based bonding. However, there is a slight difference, HEMA-based bonding have a slight lower microleakage than non HEMA-based bonding. **Conclusion.** All bonding system exhibited dye penetration. HEMA based bonding showed only slight lower microleakage than non HEMA based bonding, but not significant. Control group has the highest microleakage score and significant with the other groups.

Keywords: Dentin; Composite resin; Bonding; HEMA; Non-HEMA; Microleakage