

## PERBEDAAN KEBOCORAN TEPI TUMPATAN SEMEN IONOMER KACA DENGAN PENGADUKAN SECARA MEKANIK ELEKTRIK DAN MANUAL

### *MICROLEAKAGE DIFFERENCES BETWEEN MECHANICAL ELECTRICAL AND MANUAL MIXING OF GLASS IONOMER CEMENT FILLING*

#### **ABSTRACT**

**Background.** *Mixing techniques on GIC can be done through two ways: mechanically and manually. The resistency of a restorative materials filling in the oral cavity is influenced by several things, namely the microleakage. Different mixing techniques can significantly alter the final outcome of GIC such as mechanical behavior, porosity, also primarily microleakage that formed on GIC filling GIC as one of the type of water-based material, pretty sensitive to water contamination. Therefore, to have a perfect GIC filling, during initial setting on GIC filling surface should be applied with varnish.* **Purpose.** *The aim of this study was to know that mechanically mixed GIC filling formed lower microleakage than manually mixed GIC filling and to know whether the application of varnish on the surface of GIC filling can reduce the amount of microleakage formed on GIC filling.* **Method.** *This study used samples of the maxillary first premolar teeth that have been extracted. Number of the samples is 28 teeth, divided into 4 small groups, each group consists of 7 teeth. In study group 1 and 2 teeth filled with mechanically mixed GIC. In study group 3 and 4 teeth filled with manually mixed GIC. Then all groups were treated as follows: (1) In study group 1 and 3, varnish applied to the GIC filling surface. Meanwhile, In study group 2 and 4, varnish isn't applied to the GIC filling surface (2) immersed in sterile distilled water for 24 hours (3) immersed in methylen blue solution 0,5% for 4 hours. Microleakage of GIC filling observed by looking at the penetration of methylen blue 0,5% at the tooth cavities using a traveling microscope in millimicron scale.* **Result.** *Significance test result of One-Way Anova on microleakage of GIC filling showed that there were significant differences between the study groups, as a result of the F test showed a smaller probability value of 0,05 ( $p < 0,05$ ). LSD multiple comparison test results on microleakage of GIC filling showed that there were significant differences ( $p < 0,05$ ) between study group 1 and 4, study group 3 and 4.* **Conclusion.** *There were no differences in microleakage formed on mechanically mixed GIC filling and manually mixed GIC filling. Application of varnish on GIC filling surface can reduce the amount of microleakage formed on GIC filling.*

**Key words:** *Microleakage, Glass Ionomer Cement, Mixing techniques*