Evaluation of Sealing Ability of Self-etching Bonding Systems

T.YAMAMOTO*, M.ARATA†, T.ORI‡, H.TANAKA**, H.NISHITANI† and S.SUZUKI†
1 : SUN MEDICAL CO., LTD. 2 : University of Alabama, Birmingham, USA

Objectives
This study evaluated the sealing ability of self-etching bonding systems used for bonding, desensitizing, and dentin coating.

Materials and Method
Materials evaluated included Touch&Bond (Parkell), AQ Bond Plus (Sun Medical), and Brush&Bond (Parkell) shown in Fig.1. Extracted human molars were ground flat to dentin with #600 SiC paper under water irrigation. Smear layer on the ground surface was mechanically removed with hydroxyapatite paste (1,2). Each bonding system was applied to the surface and photo polymerized for 10 seconds. The occlusion rate was measured by an SEM (Fig.2). Cavo-surfaces of cylindrical cavities (φ5mm, 1.5mm deep) prepared on the dentin specimens were sealed with the bonding systems. The specimens were immersed in 5% methylene-blue solution for two hours, and dye penetration was evaluated by a light microscope (Fig.3). TBS was measured by adding a composite (Epic-TMPT, Parkell) onto bonded surfaces (Fig.4).

Results and Discussion
It was concluded that both AQ Bond Plus and Brush&Bond are superior to Touch&Bond in terms of sealing ability. These self-etching bonding systems may be useful to decrease a micro-leakage and desensitizing, and to protect the dentin.

Conclusions
It was concluded that both AQ Bond Plus and Brush&Bond are superior to Touch&Bond in terms of sealing ability. These self-etching bonding systems may be useful to decrease a micro-leakage and desensitizing, and to protect the dentin.

References

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